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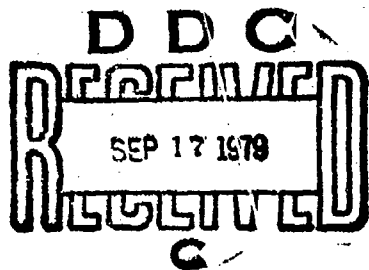
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TECHNICAL REPORT
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LEVEL IV

UNITED STATES MARINE CORPS ANTHROPOMETRY

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by
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US Army
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December 1977

UNITED STATES ARMY
RESEARCH AND DEVELOPMENT COMMAND
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MEASUREMENT(s)	U. S. MARINE CORPS	ING												
BODY SIZE	MILITARY PERSONNEL	DATA												
SIZES (DIMENSIONS)	MEN													
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) As a part of the U.S. Armed Forces anthropometric surveys of 1966, a sample of 2008 U.S. Marine Corps men was measured. The sample included 1003 men measured at Camp Lejeune, North Carolina, and 1005 men measured at Camp Pendleton, California. Seventy body measurements were taken on each man. The anthropometric data from this survey are presented and discussed in this report.														

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PREFACE

In the research and development of military materiel, the man and his equipment must be considered as an integrated system. A basic requirement in this concept, however, is that adequate information on human body size be provided for use in the design and sizing of equipment and materiel. Data on the variability of body size in the user population must be available to develop a suitable range of sizes in clothing or to provide adequate design and adjustability in equipment. Only in this way can the man and his equipment be successfully integrated to increase compatibility and improve performance.

The fact that large numbers of men are available for measurement presents a unique opportunity for anthropometric research in the "population laboratory" represented by personnel of the U.S. Armed Forces. Anthropometric data on U.S. Army and Air Force personnel have been available and in use for over 30 years. Anthropometric surveys of the U.S. Armed Forces, carried out in 1966, made possible an up-dating of these data and, for the first time, provided standard anthropometric data for all of the services.

The body size characteristics of U.S. Marine Corps men are presented in this report. The anthropometric data on Marines originally were collected in 1966. The processing, reduction, editing, and analyses of the data required several years to accomplish. The preparation and writing of this technical report, together with the compilation of the many tables of anthropometric data, has proved to be a lengthy process, often interrupted by research and other work of higher priority. However in spite of the long delay in publication, it is believed that the anthropometric data presented in this report will be of interest and use in the development and sizing of Marine Corps clothing and equipment.

A large number of people aided in the conduct of the Marine Corps anthropometric survey through their active participation, cooperation, and assistance. Had it not been for the cooperation of the 2000 men who were measured, as well as the assistance of their commanding officers and staffs, there would have been no anthropometric data to report. This report is dedicated with respect and admiration to the men of the United States Marine Corps.

The members of the measuring teams deserve full credit and acknowledgement for their long and tedious hours of measuring during the survey. The following men served on the measuring teams: SFC Emmett Headley, SSG Eli B. Oliver, SSG Theodore Stephens, SGT Howard E. Crockett, SGT Robert J. Hayes, SGT Thomas P. Skizenski, SP5 John D. Petraitis, SP5 Ira W. Clark, CPL Frank A. Mills, CPL Warren E. Stiles, CPL Andrew Taylor, SP4 Bobby L. Adams, SP4 Marvin J. Ingram, SP4 Harold D. Leonard, SP4 Don R. Montgomery, SP4 Robert A. Perrigo, SP4 Wilson E. Taylor, SP4 Otton E. Williammee, Jr., SP4 Frank D. Wood, PFC Daniel J. Arnold, PFC Ronald M. Davison, PFC Harlan G. Garbe, PFC Victor A. Kowalski, PFC Kris K. Snyder, and PFC Charles F. Troxell.

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The anthropometric survey of U.S. Marine Corps personnel was carried out in 1966. The active participation in the survey of the former U.S. Army General Equipment Test Activity, then located at Fort Lee, Virginia, and the support of Dr. Howard W. Hembree, then Technical Director, and his staff is acknowledged. This activity provided the organization and personnel to make the survey a success. Major John E. Donaldson admirably performed all of the administrative and planning functions which were necessary to schedule and maintain the measuring team's travel and activities. Able assistance was provided by Staff Sergeant Jackie W. Snyder as administrative coordinator. At various times during the survey, Captain Theodore A. Lide, Second Lieutenant James E. Gardner, and Second Lieutenant Lynn W. Kling, Jr. had the responsibility of leading and supervising the measuring teams; they performed this assignment very competently.

The cooperation and assistance of Mr. Charles E. Clauser and other members of the Anthropology Branch, Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, is gratefully acknowledged with thanks. Through the cooperation of the U.S. Air Force, Mr. Edmund Churchill and the staff of the Anthropology Research Project carried out the exacting task of reducing and processing the data — it is largely their work which is presented in this report. Mr. Churchill also prepared the sections of this report on Data Processing and the Statistical Measures.

During his term as an assistant in the Anthropology Laboratory at Natick, Mr. Richard L. Burse was extremely helpful in planning the survey, in the training program for measurers, and in analyzing the results of the survey.

The illustrative sketches in this report are the work of Mrs. M. J. Kennedy, whose able assistance is acknowledged with thanks.

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UNITED STATES MARINE CORPS ANTHROPOMETRY

1. INTRODUCTION

a. Military Anthropometry

A fundamental concept in the area of military research and development is represented by the so-called "systems approach". According to this concept, the man or the individual soldier together with his equipment, whether it be personal equipment he is wearing or using or a machine he is operating, is considered to be a man/equipment system. A basic requirement for the efficient use and operation of such a system is that the man and the equipment be compatible.

Effective human engineering plays an important role in achieving such compatibility. Since anthropometric data constitute a basic requisite for defining the elements of body size in the human engineering of man/equipment systems, anthropometry provides an essential input in the development of such systems.

Anthropometry is the measurement of the human body. Since effective human engineering requires the use of body size data on the specific population for which the equipment is intended, military anthropometry is one important source of the information necessary for the design and sizing of equipment and materiel to be used by the Armed Forces.

Anthropometric data are collected by measuring large, representative samples of the military population. Through the compilation, processing, analysis, and synthesis of such data, it is possible to provide a metric description of the military population. This information is then available for general use in the design and human engineering of military equipment and materiel, as well as for specific application in the design, sizing, and tariffing of clothing and individual equipment.

Anthropometric surveys have been conducted on all of the United States Armed Forces. To provide wide availability for such information, the anthropometric data obtained during these surveys are published in a series of technical reports. A report on the Army survey has been published. It is the purpose of the present report to present anthropometric data on men of the United States Marine Corps.

b. Historical Summary

Military anthropometry in the United States is not a new development, since anthropometric data on military personnel have been in use for at least 100 years or more. Some data on the body size of soldiers in the Civil War are available. Large quantities of anthropometric data were collected during and at the end of World War I, and an extensive anthropometric survey was conducted by the U. S. Army in 1946 at

the conclusion of World War II. A brief review of military anthropometry in the United States will indicate the primary sources of anthropometric data prior to the surveys of 1966.

Information on the body size of Civil War soldiers was reported by Gould in 1869¹ and by Baxter in 1875.² Although these data include only a few body size measurements, they do provide some indication of the body size of soldiers some 100 years ago.

A large volume of anthropometric data and statistics on World War I soldiers was published by the Medical Department of the U. S. Army, in 1921.³ In this monumental work, Davenport and Love analyzed data on some 2,000,000 draft recruits of 1917-1918, and on 100,000 troops demobilized in 1919. While a large part of the material in this volume consists of medical or clinical information, it is significant that extensive analyses were made of the correlations between body size and clothing size. In fact, many of the procedures utilized today in applied military anthropometry may be traced to the work of Davenport and Love in 1921.

Interest in the utilization and application of anthropometric data was renewed early in World War II with the establishment of the Anthropology Branch at the Aero Medical Laboratory, Wright Field, Dayton, Ohio, where anthropologists conducted anthropometric studies and carried out human engineering work on aircraft cockpits, gun turrets, oxygen masks, and flight clothing throughout the war. A summary of this work in applied anthropometry by Randall, Damon, Benton and Patt was published in 1946.⁴

¹Gould, B. A. Investigations in the military and anthropological statistics of American soldiers. For the U. S. Sanitary Commission. Hurd and Houghton, New York, N. Y., 1869.

²Baxter, J. H. Statistics, medical and anthropological, of the Provost Marshal General's Bureau, derived from the records of the examination for military service in the Armies of the United States during the late war of the rebellion, of over a million recruits, drafted men, substitutes and enrolled men. 2 volumes. U. S. Government Printing Office, Washington, D. C., 1875.

³Davenport, C. B., and A. G. Love. The Medical Department of the United States Army in the World War, Volume 15, Statistics; Part 1, Army anthropology. U. S. Government Printing Office, Washington, D. C., 1921.

⁴Randall, Francis E., Albert Damon, Robert S. Benton and Donald I. Patt. Human body size in military aircraft and personal equipment. Army Air Forces Technical Report No. 5501, Air Materiel Command, Wright Field, Dayton, Ohio, June 1946. (AT! 25 419)

Following his active duty in the Army Air Forces, Francis E. Randall transferred to the Army Quartermaster Corps, where he planned and carried out the Army anthropometric survey of 1946. This was the first extensive survey to be conducted primarily to provide body size data for military clothing sizing and tariffing; it included the measurement of both men and women. In this survey, 105,062 Army men were measured at six separation centers. Of the total series, 96,381 men were separatees, and 8,681 men were new inductees. Sixty-six body measurements were taken on each individual, while body build photographs were obtained on 49,500 men. In the series of 8,859 Army women measured, 5,116 were Women's Army Corps (WAC) personnel, while 3,742 were Army nurses. The data from these surveys were published in a series of some twelve technical reports between 1947 and 1952. The basic data on women were reported by Randall and Munro in 1949,⁵ and the data on men were reported by Newman and White in 1951.⁶

As an outgrowth of the Army's work in anthropometry and clothing, a similar effort was initiated in the United States Marine Corps in 1948. This resulted in a survey of some 2,000 Marine Corps personnel, carried out by William J. Beer, a Marine Corps officer. The anthropometric data collected were used extensively in the development and sizing of Marine Corps clothing and equipment, but unfortunately the data were never published in report form.

Another anthropometric survey was carried out by the Army Quartermaster Corps in 1949, primarily to obtain additional data on Army men in the younger age groups. In this survey, 7,272 men were measured, including draftees, enlistees, and re-enlistees. Although these data have been utilized in research, they have not been published.

With the establishment of the United States Air Force as a separate service, anthropometric surveys of Air Force personnel were carried out in 1950-1952. A series of 4,063 USAF flying personnel were measured at fourteen air bases in 1950; 132 body measurements were taken. This series consisted of 61 percent officers, 15 percent cadets, and 24 percent enlisted men. In 1952, a survey of 3,332 Air Force basic trainees was conducted, in which 60 measurements were taken. Also in 1952, 63 measurements were taken on a series of 852 Women's Air Force (WAF) personnel. The anthropometric data from these three surveys were published in a large number of reports. The basic report

⁵ Randall, Francis E., and Ella H. Munro. Reference anthropometry of Army women. Report No. 149, U. S. Army Quartermaster Climatic Research Laboratory, Lawrence, Mass., March 1949. (AD 209 837)

⁶ Newman, Russell W., and Robert M. White. Reference anthropometry of Army men. Report No. 180, U. S. Army Quartermaster Climatic Research Laboratory, Lawrence, Mass., September 1951. (AD 149 451)

on USAF flying personnel by Hertzberg, Daniels and Churchill was published in 1954,⁷ and has been widely used as a standard reference for anthropometric data. The series of USAF basic trainees was reported by Daniels, Meyers and Churchill in 1953,⁸ while the WAF data on women were reported by Daniels, Meyers and Worrall, also in 1953.⁹

To meet an increasing need for specific data on personnel in Army aviation, an anthropometric survey of Army aviators was carried out in 1959. The data, consisting of 41 measurements on 500 Army pilots, were published by White in 1961.¹⁰

An anthropometric survey of 1,549 Navy and Marine Corps aviators was carried out in 1964, in which 96 measurements were taken. The report by Gifford, Provost and Lazo was published in 1965.¹¹

c. The U. S. Armed Forces Anthropometric Surveys

New anthropometric surveys of the U. S. Armed Forces were first proposed in April, 1964. The surveys were requested and sponsored by the Defense Supply Agency, with the ultimate objective of achieving improvements in the sizing, fit, tariffing, distribution, and issue of military clothing and personal equipment.

⁷Hertzberg, H. T. E., Gilbert S. Daniels and Edmund Churchill. Anthropometry of flying personnel—1950. WADC Technical Report 52-321, Aero Medical Laboratory, Wright-Patterson Air Force Base, Ohio, September 1954. (AD 47 953)

⁸Daniels, Gilbert S., H. C. Meyers, Jr., and Edmund Churchill. Anthropometry of male basic trainees. WADC Technical Report 53-49, Aero Medical Laboratory, Wright-Patterson Air Force Base, Ohio, July 1953. (AD 30 717)

⁹Daniels, Gilbert S., H. C. Meyers, Jr., and Sheryl H. Worrall. Anthropometry of WAF basic trainees. WADC Technical Report 53-12, Aero Medical Laboratory, Wright-Patterson Air Force Base, Ohio, July 1953. (AD 20 542)

¹⁰White, Robert M. Anthropometry of Army aviators. Technical Report EP-150, U. S. Army Quartermaster Research and Engineering Center, Natick, Mass., June 1961. (AD 263 357)

¹¹Gifford, Edmund C., Joseph R. Provost and John Lazo. Anthropometry of Naval aviators—1964. Report NAEC-ACEL-533, Aerospace Crew Equipment Laboratory, U. S. Naval Air Engineering Center, Philadelphia, Pa., October 1965. (AD 626 322)

The purpose of the new surveys was two-fold. Initially, there existed a requirement for the up-dating of anthropometric data on the U. S. military population. Since the basic Army data were some 20 years old and the Air Force data were about 15 years old at the time, new body size information was needed for men in the Armed Forces. Secondly, it was recognized that data should be obtained from all of the Armed Forces, so that the surveys were planned to include samples from the major groups comprising the U. S. military population.

In planning the anthropometric surveys, it was agreed that surveys of Army, Marine Corps, and Navy personnel would be conducted by U. S. Army anthropologists, while those of Air Force personnel would be carried out by Air Force anthropologists. Following a year of planning, preparation and coordination, the surveys were initiated in August, 1965, when the Air Force obtained 158 body measurements on a series of 2,632 USAF basic trainees. Seventy body measurements were taken in the Army, Marine Corps, and Navy surveys, which were carried out between November, 1965 and April, 1966. The total Army series of 6,682 men included 2,639 basic trainees, 3,429 infantry personnel, 489 armored crewmen, and 125 Army aviation personnel. The Marine Corps sample consisted of 2,008 men, of whom 1,003 were measured at Camp Lejeune, North Carolina, and 1,005 men at Camp Pendleton, California. The Navy series comprised 4,095 recruits, half of whom were measured at Great Lakes, Illinois, and half at San Diego, California. The field work of the surveys was completed in 1967, when the Air Force obtained 187 measurements on a series of 2,420 USAF flying personnel between January and March, 1967.

The results and analyses of data from the Army survey were published in an extensive report by White and Churchill in 1970.¹² The data on U. S. Navy recruits have been processed and studied, but have not been published as yet in a technical report.

Subsequent to the Armed Forces surveys, two additional anthropometric surveys of U. S. Army aviation personnel were carried out. In the first, nine body measurements were made on a series of 1,640 Army warrant officer candidate flight trainees in 1968; the report by Schane, Littell and Moultrie was published in 1969.¹³ In the second survey,

¹²White, Robert M., and Edmund Churchill. The body size of soldiers: U. S. Army anthropometry—1966. Technical Report 72-51-CE, U. S. Army Natick Laboratories, Natick, Mass., December 1971. (AD 743 465)

¹³Schane, W. P., D. E. Littell and C. G. Moultrie. Selected anthropometric measurements of 1640 U. S. Army warrant officer candidate flight trainees. USAARL Report No. 69-2, U. S. Army Aeromedical Research Laboratory, Fort Rucker, Alabama, February 1969. (AD 688 856)

a series of 1,482 Army aviators were measured in 1970; 85 body measurements were taken. A report on the data by Churchill, McConville, Laubach and White was published in 1971.¹⁴

An anthropometric survey of U. S. Air Force women was conducted in 1968, in which 137 measurements were made on a sample of 1,905 women, including nurses, officers and enlisted women. The report by Clauser and co-authors was published in 1972.¹⁵ In 1976-1977, an anthropometric survey of U. S. Army women was carried out in which 128 measurements were obtained on 1,330 basic trainees, officers, and nurses. A series of reports by several authors was published in 1977.^{16,17,18} In addition, a small series of Army men also were measured at the end of the women's survey; the report by McConville, Churchill, Churchill and White also was published in 1977.¹⁹

¹⁴Churchill, Edmund, John T. McConville, Lloyd L. Laubach and Robert M. White. Anthropometry of U. S. Army aviators-1970. Technical Report 72-52--CE, U. S. Army Natick Laboratories, Natick, Mass., December 1971. (AD 743 528)

¹⁵Clauser, Charles E., Pearl E. Tucker, John T. McConville, Edmund Churchill, Lloyd L. Laubach and Joan A. Reardon. Anthropometry of Air Force women. AMRL Technical Report 70-5, Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, April 1972. (AD 743 113)

¹⁶Laubach, Lloyd L., John T. McConville, Edmund Churchill and Robert M. White. Anthropometry of women of the U. S. Army-1977; Report No. 1 -- Methodology and survey plan. Technical report NATICK/TR-77/021, U. S. Army Natick Research and Development Command, Natick, Mass., June 1977. (AD A043 715)

¹⁷Churchill, Edmund, Thomas Churchill, John T. McConville and Robert M. White. Anthropometry of women of the U. S. Army-1977; Report No. 2 --The basic univariate statistics. Technical Report NATICK/TR-77/024, U. S. Army Natick Research and Development Command, Natick, Mass., June 1977. (AD A044 806)

¹⁸Churchill, Thomas, Edmund Churchill, John T. McConville and Robert M. White. Anthropometry of women of the U. S. Army-1977; Report No. 3 -- Bivariate frequency tables. Technical Report NATICK/TR-77/028, U. S. Army Natick Research and Development Command, Natick, Mass., July 1977. (AD A046 692)

¹⁹McConville, John T., Edmund Churchill, Thomas Churchill and Robert M. White. Anthropometry of women of the U. S. Army-1977; Report No. 5 -- Comparative data for U. S. Army men. Technical Report NATICK/TR-77/029, U. S. Army Natick Research and Development Command, Natick, Mass., July 1977. (AD A048 591)

Two annotated bibliographies are available which may be of interest in this review of U. S. military anthropometric surveys. The latest edition of the U. S. Air Force annotated bibliography of applied physical anthropology was prepared by Reid in 1976:²⁰ it includes summaries of Air Force publications between 1946 and 1976. An annotated bibliography of U. S. Army publications between 1947 and 1976 was prepared by White in 1977.²¹ In the area of physical anthropology, this includes summaries of technical reports, articles, and papers on anthropometry, applications, constitutional and environmental anthropology, and human identification.

The anthropometric surveys of the U. S. Armed Forces, carried out between 1965 and 1967, represented a new approach in that for the first time standard body measurements were taken in coordinated surveys on personnel of all the military services within the same time frame. The data provided a basis for describing the body size of the military population of the United States and made possible direct comparisons of body size among personnel of the Armed Forces.

d. Summary of Report

The results of an anthropometric survey of the United States Marine Corps are presented in detail in this report.

In Section 2, the Marine Corps survey is discussed in terms of the planning and organization of the survey, the methodology and techniques of measurement used, and the locations and times of the measuring.

The methods of data processing, including data reduction, editing, and the computation of statistics are presented in Section 3.

The sample of Marine Corps men measured in the survey is discussed in Section 4. The background information obtained during the survey serves to describe the characteristics of the men in terms of military information, such as rank and length of military service, and personal information, such as age, birthplace, education, and other items.

²⁰ Reid, Betty. An annotated bibliography of United States Air Force applied physical anthropology — January 1946 to July 1976. AMRL Technical Report 76-58, Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, July 1976. (AD A029 942)

²¹ White, Robert M. An annotated bibliography of U. S. Army anthropology (1947-1977). Technical Report NATICK/TR-78/012, U. S. Army Natick Research and Development Command, Natick, Mass., December 1977. (AD A060 939)

The statistics used in the presentation of the anthropometric data are explained and discussed in Section 5.

In Section 6, the detailed anthropometric data obtained during the survey are given, together with an index of dimensions, as well as a visual index of the body measurements.

Summary tables of statistical and percentile values for the anthropometric data are presented in Section 7.

An analysis and discussion of the Marine Corps anthropometric data are given in Section 8. Comparisons of the Marine Corps subseries, and comparisons of the Marine Corps data with similar U. S. Army data are included here.

Section 9 contains a summary and conclusions of the survey. A list of references may be found in Section 10. The data sheet used in the survey is reproduced in the Appendix.

2. THE U. S. MARINE CORPS ANTHROPOMETRIC SURVEY

a. Planning and Organization

A request for the conduct of new anthropometric surveys of the U. S. Armed Forces was initiated by the Defense Supply Agency in April, 1964. It was planned that the Marine Corps survey would be carried out in conjunction with similar surveys of personnel in the other services of the Armed Forces.

Approval of the proposed Marine Corps anthropometric survey, with measuring to be carried out at Camp Lejeune, North Carolina and Camp Pendleton, California, was requested from the Commandant of the Marine Corps in December, 1964. Approval was granted by the Commandant of the Marine Corps in February, 1965.

Responsibility for planning and organizing the survey was assigned to the U. S. Army Natick Laboratories, Natick, Massachusetts, by the U. S. Army Materiel Command. Since the Natick Laboratories did not have either the civilian or military personnel to carry out a large-scale anthropometric survey in the field, assistance was requested from the U. S. Army General Equipment Test Activity, an element of the U. S. Army Test and Evaluation Command, located at Fort Lee, Virginia. This activity provided the military personnel, as well as the administrative and logistic support for the collection of the anthropometric data during survey. Twenty Army enlisted men were requested from Fort Meade, Maryland; these men were members of the 11th Armored Cavalry Regiment and were assigned to USAGETA, Fort Lee for temporary duty to serve on the measuring teams for the duration of the survey. This Army team carried out the Marine Corps survey, as well as similar surveys of Army and Navy personnel.

Technical direction and monitorship of the scientific aspects of the survey were the responsibilities of Natick Laboratories anthropologists. Administrative planning and supervision, scheduling and travel arrangements, and logistic support were performed by the General Equipment Test Activity under the direction of an officer who served as Project Director, assisted by a sergeant who served as Administrative Coordinator.

In the field, the survey team was directed and supervised by a Survey Officer, assisted by a noncommissioned officer in charge (NCOIC). The measuring team personnel were organized into three teams, each with a team leader and six measurers. At each installation where measuring was carried out, additional enlisted men were requested on a temporary basis to serve as data recorders.

The Project Director was authorized to establish direct coordination with the installations which would be visited by the Army measuring team. In planning the schedule for the survey, the Project Director contacted a designated project officer at each installation and provided information on the plan of operations, as well as on the number of men required to be measured, the space and equipment required, and the efficient scheduling of personnel. A liaison officer visited each installation prior to the team's scheduled arrival in order to carry out the final coordination of plans and to provide guidance to the installation project officer.

The installation project officers were designated by the respective participating installations. It was the responsibility of the installation project officer to assist the Project Director and the Survey Officer in liaison functions and installation administrative procedures, including the provision of facilities and equipment required and the scheduling of participants for a smooth flow of men through the measuring lines. He was also responsible for providing the additional personnel required, as well as the quarters and messing facilities for the measuring team personnel.

b. Methodology and Techniques

The first step in the technical planning for the Marine Corps survey (and the Army and Navy surveys as well) consisted of the selection of body measurements to be taken. Primary consideration was given to the problem of selecting a large enough number of measurements to be useful for a variety of requirements, while at the same time keeping the number of measurements to a manageable minimum suitable for a large-scale survey. A total of seventy body measurements was selected. These included weight, standing measurements, sitting measurements, breadth measurements, circumferences and body surface measurements, as well as measurements of the head and face, the hands, and the feet. It was felt that this selection of dimensions, while not as extensive or inclusive as it might be, still would provide most of the data and body size information required for the efficient design and sizing of military clothing and personal equipment, as well as for basic human engineering information necessary in the design of military vehicles, aircraft, and other weapons systems.

Following the selection of the body measurements to be taken, a data sheet was drawn up which would be used for the recording of the anthropometric data in the field. The format of the data sheet was arranged to facilitate transcription of the data to punch cards; column numbers for the punch cards were indicated on the data sheet. Five punch cards were required for each man measured; the first card contained the background data on each individual, while the remaining four cards contained the anthropometric data. The background data were coded to simplify punching and subsequent data processing. The body measurements were measured and recorded in millimeters, while weight was measured and recorded to the nearest whole pound. The data sheet is reproduced in the Appendix of this report. The skinfold thickness indicated for Station #7 at the end of the data sheet were not measured.

Standard techniques of measurement and standard anthropometric measuring instruments were used throughout the survey. The anthropometer (Siber Hegner 101) consists of four tubes which fit together to form a rigid rod; it is calibrated in millimeters, with the scale running from zero at the base up to 2000 mm at the top. The anthropometer has one fixed arm at the top and a second arm on a sliding sleeve which can be moved up and down on the rod. The full anthropometer was used to measure stature and other major body heights or lengths. The lower half of the anthropometer was used for lesser heights, such as crotch height, kneecap height, and calf height. The top half of the anthropometer was used as a large sliding caliper for taking body breadths and also measurements of the arms and legs, such as shoulder breadth, elbow-fingertip length, and buttock-knee length. A millimeter scale on the reverse side of the instrument was used when taking this type of measurement.

Small sliding calipers (Siber Hegner 104), with straight arms, were used for various measurements of the face and hands. Spreading calipers (Siber Hegner 106), with curved arms, were used for other measurements of the head and face. A two-meter steel tape (K. & E Tip Top Wyteface), graduated in millimeters, was used for all circumference and body surface measurements.

In addition to the standard instruments, several other items of equipment were used in the survey. Foot measurements (foot length, instep length, and foot breadth) were taken with a foot board, which consists of a metal tray fitted with a sheet of millimeter graph paper covered with transparent plastic. In taking the foot measurements, a wooden block was held against the toe or the ball of the foot and the value of the dimension was read on the scale. In positioning the knees for taking leg measurements on a seated individual, a box was used as a foot-rest; squares of plywood were added to elevate the feet when necessary in order to have the thighs level and the knees at right angles.

In planning the measuring process in detail, an attempt was made to develop a system which would permit accurate and rapid measurement of men, but which also would insure a relatively smooth and efficient progression of men through the processing line. To this end, a sequence of six measuring stations was planned. The seventy body measurements to be taken were divided up into groups or blocks of measurements; each of these blocks

of measurements was taken at one of the measuring stations. The selection of the measurement groupings was based partly upon the measuring instrument (or instruments) to be used at that station and partly upon the position or posture required of the man to be measured at that station. This was done primarily to reduce time and motion to a minimum.

The actual measurement procedure may be outlined as follows. After a brief orientation concerning the purpose of the anthropometric survey, the men to be measured were requested to strip to their undershorts. Each man then reported to Station #1, where his name, rank, service number, and the rest of the background data were entered on his data sheet. He also was asked to estimate his weight and height, and then his weight was measured to the nearest pound on platform scales. The subject then moved on to Station #2 for a group of height measurements, taken with the anthropometer, and to Station #3 for a group of breadth and length measurements, taken with the large calipers. At Station #4, spreading and sliding calipers and the foot board were used for a group of head, face, hand, and foot measurements. Circumferences and body surface measurements (such as sleeve length and waist back length) were taken with a steel tape at the last two locations, Stations #5 and #6. Specific descriptions of the individual body measurements, including the position of the subject, how the measurement was taken, and the instrument used, may be found in Section 6 with the data on each measurement.

A measurer worked at each station and took the specific group of measurements assigned to that station. The measurer was assisted by a data recorder at each station.

In order to process and measure large numbers of men rapidly and efficiently, it was planned to operate three measuring lines simultaneously. Therefore, in a typical measuring operation, there were three sets of six stations, manned by three measuring teams, each of six men. With all stations in operation, 18 men were being measured at once, and normally three to five men would be waiting their turn at each station.

Before initiation of the measuring and data collection in the survey, training sessions for the Army measuring teams were held at Fort Lee, Virginia. Initially, the measuring personnel were briefed on the survey and on anthropometric techniques. Visual training aids were used to illustrate the measurements and the sequence of stations. The measurers were then shown the anthropometric instruments and assigned to their respective measuring stations. Thus, the measurers could specialize in the use of one type of instrument and learn to take a specific group or block of body measurements. Training in the use of the instruments was carried on by having the measurers practice on each other and then measure a small group of subjects in trial runs. The training and practice sessions were continued until a satisfactory level of accuracy and consistency was attained.

c. Locations and Dates of Measuring

Collection of anthropometric data in the Marine Corps survey was initiated in January, 1966. The Army team of measurers processed 1003 Marines at Camp Lejeune, North

Carolina between 10-14 January, 1966. The second group of 1005 Marines was measured at Camp Pendleton, California between 7-11 February, 1966. The total Marine Corps series of 2008 men was measured in ten working days; on the average, about 200 men were measured per day.

3. DATA PROCESSING

a. Data Reduction

Data processing in this survey began with the recording of the data in the field by the several recorders on special survey blanks (see Appendix). Weight was recorded in pounds and the linear measurements in millimeters.

Transfer of the anthropometric data from the survey sheets to punch-cards was accomplished daily by Marine Corps data processing elements at both Camp Lejeune and Camp Pendleton.

The punched cards were then delivered to the Anthropology Research Project. All major steps in the data processing from this point on were done by this group using the facilities of the Digital Computational Division, Aeronautical Systems Division at Wright-Patterson Air Force Base, Ohio. Computations were done on an IBM 7094-7044 direct coupled system. All programs were written in Fortran and computations were done in single precision arithmetic.

The punch-cards were read into the computer and transferred to magnetic tape. Certain minor adjustments were made to the data at this point; e.g., 10 mm was added to each crotch height value to compensate for the fact that the recorded values had been read at the lower edge of the anthropometer arm, although the measurement was actually to the top of the arm.

b. Editing Programs

The first step in the processing of the data tapes consisted of checking the data for errors which might have taken place at any point in the data gathering-recording-transcribing process. Two computer programs which had been developed specifically for this purpose were used.

The first of these programs, designated as XVAL. (= extreme value), was used to isolate values which seemed to be inconsistent with the other data for that variable. The program performs the following functions:

1. It provides, for each variable, a list of the ten smallest and the ten largest values and the record numbers of the subjects with these values.
2. It calculates, for each variable, the mean, standard deviation, and the measures of symmetry and kurtosis (β_1 and β_2).

3. It estimates, for each variable, the values of the mean and the standard deviation on the basis of all the data with the exception of the ten largest and ten smallest values.

Data values out of line with respect to other values for the same variable were usually identified from this program's listings. Outliers were often signalled by several items in the program output. The size of the smallest or largest value itself was usually a clear indicator of a major error, as was a substantial difference between the standard deviation computed from all the data and the value estimated from the central N-20 values.

The measure of kurtosis, β_2 , described in the section on statistical measures, was effective particularly in signalling the presence of even one or two values lying well outside the "normal" range. For a normal (i.e., gaussian) distribution, the theoretical value of β_2 is 3.0, and the final values for this statistic were fairly close to 3 for most of the data covered by this report, being somewhat larger for variables with skewed distributions. On the other hand, the presence of a single highly extraneous value in a set of data may result in a value of β_2 almost as large numerically as the sample size.

All values signaled by the XVAL program as questionable were investigated and obvious errors corrected. The data were then examined by use of the editing program. This program was designed to evaluate each recorded datum in terms of related data for the same individual. Each subject's stature, for example, was compared by means of multiple regression equations with other height measurements. Similarly, each subject's chest circumference measurement was weighed as reasonable or unreasonable in terms of the combination of his chest breadth and chest depth values.

Some fifty-six three-variable combinations were specified in the program for analysis. Twenty-one more-or-less typical combinations are listed in Table 1.

The primary criterion for the selection of the variables which are grouped together was that one or more members of a combination could be estimated with reasonable accuracy from the other members of the combination. Each variable was included in at least one combination, and all but a few were included in at least two.

The computer calculated regression equations for each variable in a combination in terms of the other two. Once the equations (and the associated standard errors) had been computed, the equations were used to estimate the values of the variables in each combination. These estimates were compared with the recorded values. Whenever an estimate and the recorded value differed by more than five times the appropriate standard error of estimate, an error message was printed out. This message contained, in addition to the estimate and recorded value, a considerable amount of other data about the subject in question which was deemed to be of value in evaluating the questioned datum. For example, where a stature measurement was in question, this message included the subject's other height measurements, expressed both in millimeters and in standard score form.

Table 1. A List of Selected Editing Combinations

Stature	Cervicale Height	Shoulder Height
Shoulder Height	Waist Height	Crotch Height
Sitting Height	Eye Height, Sitting	Mid-Shoulder Height, Sitting
Stature	Crotch Height	Sitting Height
Weight	Neck Circumference	Shoulder Circumference
Shoulder Circumference	Chest Circumference	Waist Circumference
Hip Circumference	Upper Thigh Circumference	Lower Thigh Circumference
Lower Thigh Circumference	Calf Circumference	Ankle Circumference
Chest Circumference	Interscye Breadth	Interscye, Maximum
Chest Depth	Chest Breadth	Chest Circumference
Hip Breadth	Hip Breadth, Sitting	Hip Circumference
Shoulder Breadth	Maximum Forearm-Forearm Breadth	Shoulder Circumference
Biceps Circumference, Relaxed	Biceps Circumference, Flexed	Forearm Circumference, Flexed
Occiput-External Canthus	Occiput-Nasal Root	Occiput-Pronasale
Face Breadth	Bitragion Breadth	Head Breadth
Head Length	Head Breadth	Head Circumference
Hand Length	Palm Length	Thumb Crotch Length
Hand Breadth	Wrist Circumference	Hand Circumference
Crotch Height	Buttock-Knee Length	Buttock-Popliteal Length
Heel Breadth	Ball of Foot Breadth	Ball of Foot Circumference
Functional Reach	Sleeve Length	Sleeve Inseam Length

Each questioned value was thoroughly examined. Errors in punching were, of course, rectified. Often, when the value recorded for one variable for a particular subject appeared to be most unlikely, other data for this subject would indicate a value for this variable which a simple observational or recording error could have turned into the recorded value. Thus, for example, a subject might have values for stature, shoulder height, waist height, and crotch height all approximately equal to the mean values of these measurements, plus a cervical height value of 1409 mm, a value about one and a half standard deviations below the mean for cervical height. In such a case, it seemed quite reasonable to believe that this man's cervical height had actually been 1490 mm — approximately average — and that the third and fourth digits had been reversed in the recording; a corresponding change was made in the data. In general, when the data indicated quite clearly both that a value was in error and what, approximately, the correct value almost certainly was, the appropriate change was made.

The large number of measurements made on each man and the generally high level of intercorrelations among the variables made it possible to estimate almost any one of the variables with high accuracy from a knowledge of the others. It was, therefore, possible to do a fairly thorough editing job on most of the variables.

c. Computation of Statistics

Computation of the summary statistics and frequency tables were carried out on the computer, working from the magnetic tape record of the edited data. Four constants were stored in the computer for each variable before calculations began:

- (a) $A_{i,1}$ — the lower limit of the first interval in the frequency table for the i th variable;
- (b) $A_{i,2}$ — the maximum value attained by the i th variable;
- (c) $A_{i,3}$ — an integer value approximately equal to the average value of the i th variable, and
- (d) WID_i — the width of the intervals for the i th variable.

The first of these constants, $A_{i,1}$, was, of necessity, either equal to or slightly less than the minimum value of the i th variable. Thus, the first two constants defined a range of values into which every value for the i th variable should fall. Each datum was tested as it was read into the computer to insure that it did, in fact, lie within the appropriate range.

The third of these constants, $A_{i,3}$, was subtracted from each value for the i th variable and all summations required for the statistical computations were based on the resulting differences. This procedure markedly reduced the size of the summations, minimizing truncation errors in these computations, and ensuring adequate results from simple precision calculations.

The first and last of the stored constants were used in establishing the frequency tables. These constants were chosen to provide tables with no more than fifty intervals.

As each data record was read into the computer:

(a) each value was checked to guarantee that it was in range. Had any non-zero value been out of range, all data for that subject would have been rejected. On the final run, no values, as should have been expected, were out of range.

(b) each non-zero value, x_i , was converted into its difference value:

$$Y = X_i - A_{i,3}$$

(c) the first four powers of Y were accumulated:

$$S_{i,1} = S_{i,1} + Y$$

$$S_{i,2} = S_{i,2} + Y^2$$

$$S_{i,3} = S_{i,3} + Y^3$$

$$S_{i,4} = S_{i,4} + Y^4$$

(d) the count of the number of non-zero values for the i th variable was accumulated:

$$N_i = N_i + 1$$

(e) the interval of the frequency table for the i th variable to which x_i belongs was determined:

j = the smallest whole number less than or equal to

$$(X_i - A_{i,1})/WID_i + 1.0$$

and unity was then added to the previous count for this interval:

$$F_{i,j} = F_{i,j} + 1$$

When all of the data had been processed, the summary statistics were computed using these formulas:

$$(a) \quad W = S_{i,1} / N_i$$

$$Z = S_{i,2} / N_i$$

$$U = S_{i,3} / N_i$$

$$V = S_{i,4} / N_i$$

followed by:

$$(b) \quad M = \text{arithmetic mean} = W + A_{i,3}$$

$$SD = \text{standard deviation} = \sqrt{Z - W^2}$$

$$\beta_1 = \text{symmetry} = (U - 3ZW + 2W^3) / (SD)^3$$

$$\beta_2 = \text{kurtosis} = (V - 4W + 6ZW^2 - 3W^4) / (SD)^4$$

$$V = \text{coefficient of variation} = 100 \cdot SD/M$$

$$SE(M) = \text{standard error of the mean} = SD / \sqrt{N_i}$$

$$SE(SD) = \text{standard error of the standard deviation} = SE(M) \cdot 0.7071$$

The computation of the percentiles was carried out using a procedure developed by Churchill to achieve the speed and reproducibility of computer calculations while simulating the procedure of plotting cumulative frequencies on normal-probability graph paper and reading percentiles from these graphs.

The first step in these computations consisted of calculating rough values for each percentile by direct interpolation in the frequency table. To compute the K th percentile, the first interval for which the cumulative percent frequency, $CPF(U)$, exceeded $K\%$ was located. If L represents the lower limit of this interval; WID , the interval width; $CPF(L)$, the cumulative percent frequency up to but not including this interval; then the K th rough percentile was computed as

$$L + WID \left(\frac{K - CPF(L)}{CPF(U) - CPF(L)} \right)$$

To illustrate this formula, we may calculate the rough 1st percentile for stature, using the data shown on page 64. We observe that the fifth interval (160.75 - 161.74 centimeters) is the first interval for which the cumulative frequency count exceeds 1%. Hence,

- L = the lower limit of this interval = 160.75
- WID = the width of the interval = 1.0
- CPF(L) = the cumulative percent frequency for the first four intervals = 0.70
- CPF(U) = the cumulative percent frequency for the first five intervals = 1.29, and

the Kth percentile =

$$160.75 + 1.0 \left(\frac{1.00 - 0.70}{1.29 - 0.70} \right) = 160.75 + 1.0 \cdot 0.51 =$$

$$160.75 + 0.51 = 161.26 \text{ cm.}$$

We note that the smoothed value of 161.27 cm., also given on page 65, differs from the result of these calculations by 0.1 millimeter. This computation was done for each of the 25 percentiles listed for each measured variable.

In the second step of these computations, the 25 computed percentiles were then smoothed by a process designed to simulate plotting on normal-probability graph paper and drawing a smooth line through the set of points. What is actually done is to assign an "X-value" to each raw percentile equal to the corresponding deviate of the normal distribution, fit a fourth degree polynomial to these points, and read the smoothed values from this polynomial. By using orthogonal polynomials, the computational procedure is fairly simple.

The statistics (except for β_1 , β_2 , and V, which are dimensionless) were, in most instances, then multiplied by 0.1 to convert from millimeters to centimeters. The centimeter values were then multiplied by 0.3937 to provide values in inches, and weights were converted from pounds to kilograms by using 0.45359 as the multiplier.

To provide a maximum of flexibility in listing the statistics and frequency tables for photographic reproduction in this report, the results were entered on punched cards and tables prepared by listing these cards on an IBM 407 tabulator.

4. THE SAMPLE OF U. S. MARINE CORPS MEN MEASURED

A total sample of 2008 Marines were processed and measured during the Marine Corps anthropometric survey. Of the total series, 1003 men were measured at Camp Lejeune, North Carolina, and 1005 men were measured at Camp Pendleton, California. In processing and analyzing the data obtained during the survey, the results were tabulated for the total series and also for the Lejeune and Pendleton subseries separately.

While the primary objective of the Marine corps anthropometric survey was to obtain body measurement data, additional information was necessary as a supplement to the anthropometric data. Therefore, two general types of background data on the men were recorded at the time they were processed and measured. In the category of military information, such items as rank, pay grade, and length of service were recorded and subsequently analyzed. An attempt also was made to record primary and present billet military occupational specialty (MOS), additional specialty or MOS, and armored vehicle crewman category or crew position, but the recording of these items was unsatisfactory and the results could not be analyzed. In the category of personal information, such items as age, birthplace, birthplace of father and mother, location of longest residence, national extraction, education, and marital status were recorded. Notations also were made on whether the individual wore glasses, his handedness, and his combat boot size. These items of background information serve to describe and characterize the sample of Marine Corps men who were measured in the survey.

a. Military Information

(1) **Military Rank and Pay Grade.** The total series of Marines measured during the 1966 anthropometric survey consisted primarily of enlisted men. Over 99 percent of the sample were enlisted men, while less than one percent were staff non-commissioned officers. No warrant officers or commissioned officers were measured during the Marine Corps survey. The distributions of rank were the same at Camp Lejeune and Camp Pendleton. On the basis of pay grade, about 85 percent of the total series of Marines were privates, privates first class, or lance corporals in the first three pay grades (E-1 to E-3). About 15 percent were in pay grades E-4 and above. The distribution of pay grades was similar in the two subseries, with slightly more than 85 percent in the first three pay grades at Camp Lejeune and slightly less than 85 percent in the first three pay grades at Camp Pendleton.

(2) **Length of Military Service.** The length of service of Marines measured in the survey ranged from two months to 12 years. The largest number of men (28 percent) had been in service for less than six months. Forty-one percent of the total series of Marines had been in service for less than one year, while 67 percent had been in service for less than two years.

b. Personal Information

(1) **Age.** The ages of the men measured in the Marine Corps survey were recorded as of their last birthday. The mean age of the total Marine Corps series was 20.88 years. The standard deviation was 2.87 years, and the coefficient of variation was 13.74 percent. The range of age for the total series was from 17 to 43 years. Approximately 66 percent of the Marines were between 18 and 20 years of age. The distribution and statistical values of age for the total Marine Corps series are given in Table 2. The Camp Lejeune subseries had a mean age of 21.01 years, with a standard deviation of 3.06 years and

Table 2. AGE OF TOTAL MARINE CORPS SERIES

--INTERVALS--		--FREQUENCIES--			
YEARS		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
43.00-	43.99	1	2008	0.05	100.00
42.00-	42.99	1	2007	0.05	99.95
41.00-	41.99	1	2006	0.05	99.90
40.00-	40.99	0	2005	0.00	99.85
39.00-	39.99	1	2005	0.05	99.85
38.00-	38.99	1	2004	0.05	99.80
37.00-	37.99	2	2003	0.10	99.75
36.00-	36.99	2	2001	0.10	99.65
35.00-	35.99	6	1999	0.30	99.55
34.00-	34.99	7	1993	0.35	99.25
33.00-	33.99	5	1986	0.25	98.90
32.00-	32.99	1	1981	0.05	98.66
31.00-	31.99	8	1980	0.40	98.61
30.00-	30.99	12	1972	0.60	98.21
29.00-	29.99	10	1960	0.50	97.61
28.00-	28.99	9	1950	0.45	97.11
27.00-	27.99	9	1941	0.45	96.66
26.00-	26.99	18	1932	0.90	96.22
25.00-	25.99	32	1914	1.59	95.32
24.00-	24.99	38	1882	1.89	93.73
23.00-	23.99	83	1844	4.13	91.83
22.00-	22.99	158	1761	7.87	87.70
21.00-	21.99	257	1603	12.80	79.83
20.00-	20.99	405	1346	20.17	67.03
19.00-	19.99	567	941	28.24	46.86
18.00-	18.99	348	374	17.33	18.63
17.00-	17.99	26	26	1.29	1.29

Table 2. AGE OF TOTAL MARINE CORPS SERIES (continued)

PERCENTILES

YEARS

34.27	99 TH
30.65	98 TH
28.75	97 TH
25.80	95 TH
23.56	90 TH
22.66	85 TH
22.02	80 TH
21.62	75 TH
21.23	70 TH
20.90	65 TH
20.65	60 TH
20.40	55 TH
20.16	50 TH
19.93	45 TH
19.76	40 TH
19.58	35 TH
19.40	30 TH
19.23	25 TH
19.05	20 TH
18.79	15 TH
18.50	10 TH
18.21	5 TH
18.10	3 RD
18.04	2 ND
17.77	1 ST

THE SUMMARY STATISTICS

....

YEARS

ARITHMETIC MEAN = 20.88
 STANDARD ERROR OF MEAN = 0.06
 STANDARD DEVIATION = 2.87
 STANDARD ERROR STD DEV = 0.05

....

SYMMETRY--BETA I = 3.03
 KURTOSIS--BETA II = 16.00
 COEFFICIENT OF VARIATION = 13.74

....

SAMPLE SIZE = 2008

a coefficient of variation of 14.57 percent, while the Camp Pendleton subseries had a mean age of 20.76 years, with a standard deviation of 2.66 years and a coefficient of variation of 12.81 percent. Although the mean ages of the two subseries were very similar, about 60 percent of the men at Camp Lejeune were between 18 and 20 years of age, while about 71 percent of the Camp Pendleton men were between 18 and 20 years of age. The average age for the total Marine Corps series measured, as well as for the two subseries for Camp Lejeune and Camp Pendleton may be considered to be 21 years.

(2) **Birthplace and Residence.** To assess the geographical distribution of the sample of men measured in the Marine Corps survey, the men were asked to give their birthplace, as well as the birthplaces of their parents. In addition, they also were asked to state the area of their longest residence prior to military service.

In the compilation of the information on geographical distribution, the individual states of the United States were grouped into the nine geographical divisions used by the Bureau of the Census. The two newest states of Alaska and Hawaii, as well as the Commonwealth of Puerto Rico and the Canal Zone, were listed separately. The large number of foreign countries which were reported were arbitrarily grouped for convenience into geographical areas.

In the total Marine Corps series, 97 percent of the men were born in the United States, a few were born in Puerto Rico or the Canal Zone, and 2.4 percent were born in foreign countries. Approximately 92 percent of the fathers were born in the United States, while about seven percent were foreign born; 94 percent of the mothers were born in the United States and about five percent were foreign born. Almost 99 percent of the Marines reported having lived in the United States prior to military service, while slightly over one percent had lived abroad.

Over 60 percent of the men in the total Marine Corps series were born in three of the nine geographical divisions, and over 62 percent had lived there; their fathers and mothers also were predominantly from these areas. The Middle Atlantic division (New York, New Jersey, and Pennsylvania) represented an area in which 24 percent of the Marines were born. The East North Central division (Ohio, Indiana, Illinois, Michigan, and Wisconsin) included 19 percent, while the South Atlantic division (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida) accounted for 18 percent. The largest number of foreign-born in this sample were men born in Canada. In the Camp Lejeune subseries, 68 percent were born in the three eastern geographical divisions, while in the Camp Pendleton subseries, 54 percent were born in these divisions. Twelve percent of the men at Camp Pendleton were born in the Mountain or Pacific states, Alaska or Hawaii.

(3) **National Extraction.** During the Marine Corps survey, men were requested to give their national extraction or ethnic derivation. In the listing of national extraction, there were three categories in which the national extraction was not otherwise specified. In the three categories of American White (24.4 percent), American Negro (11.2 percent)

and American Indian (1.6 percent), the number of men comprised about 37 percent of the total Marine Corps series. Irish, German, English, Italian, French, and Polish national extractions accounted for 49 percent of the total series, while the remaining 14 percent represented some 27 other ethnic backgrounds or national extractions. A minor difference between the two subseries was that the Camp Lejeune sample included one percent of Puerto Ricans, while the Camp Pendleton group included 4.8 percent of Spanish or Mexican national extraction.

(4) **Education.** The educational level of the Marines was recorded on the basis of the number of years of schooling completed. In the total Marine Corps series, the range of educational level was from six years up to 17 years. About 32 percent of the total series had completed 11 years or less, while 57 percent had completed 12 years of education or the equivalent of high school. The remaining 12 percent had received schooling above high school level.

(5) **Marital Status.** In the total Marine Corps series, about 85 percent of the men were single and about 15 percent were married; only 0.2 percent were divorced. No individuals were recorded as being separated or widowers.

(6) **Eyeglasses and Handedness.** Two additional items of information were included in the background data obtained during the Marine Corps survey. Without any specific reference to contact lenses, the men were asked whether or not they wore eyeglasses. In the total Marine Corps series, 77 percent stated that they did not wear glasses, while 23 percent replied that they did wear glasses. The Lejeune and Pendleton subseries also were the same; 77 percent did not wear glasses and 23 percent did.

The Marines in the survey also were questioned as to their handedness. In the total Marine Corps series, 89 percent replied that they were right-handed, ten percent were left-handed, and one percent stated that they were ambidexterous. In the Lejeune subseries, 89 percent were right-handed, ten percent were left-handed, and one percent were ambidexterous, while in the Pendleton subseries, 88 percent were right-handed, eleven percent were left-handed, and one percent were ambidexterous.

(7) **Size of Combat Boots.** While the Marines were being processed prior to measurement, they were asked what size of combat boots they wore. Since many of the men did not know or could not determine the widths of their boots, the data on boot widths was incomplete or unsatisfactory; consequently, only the responses on boot size or length were tabulated. Sizes of combat boots recorded as being worn by men in the total Marine Corps series ranged from size 5 up to size 15. The modal boot size (worn by the largest number of men) for the total series was size 9, which was worn by about 30 percent of the men. Sizes 9 and 10 together were worn by 59 percent of the men. The modal size for Camp Lejeune was size 10, worn by 32.5 percent, while the modal size for Camp Pendleton was size 9, worn by 31 percent of the men. Sizes 9 and 10 together were worn by 61 percent of the men at Camp Lejeune, and by 57 percent of the men at Camp Pendleton.

In taking standard anthropometric measurements of the foot, foot length is measured from the heel to the tip of the longest toe. Information on the relative lengths of the first and second toes is of importance in the design, sizing and fit of footwear. Consequently, while the foot measurements were being taken during this survey, notations were made on the relative toe lengths. The results of these observations indicated that the first or great toe was longer than the second toe on 92 percent of the men measured, while the second toe was longer than the first on eight percent of the men.

5. THE STATISTICAL MEASURES

The usefulness of any anthropometric survey depends in large measure on the extent to which the mass of measurement data generated by the survey is translated by statistical analyses into summaries of value in the solution of design and related problems and which point up the important implications of the data. The statistical summaries presented in this section have been chosen in the belief that they provide the simplest and most generally useful univariate summaries of the great amount of data collected in the present survey. As valuable as these statistics may prove to be, they contain only a small portion of the useful information embodied in the survey data. Additional information is to be sought in those summaries which involve the simultaneous distribution of two or more sets of these measurement data.

The summary statistics which traditionally have been included in U. S. military anthropometric reports are provided here for each anthropometric variable. Measures of skewness and kurtosis have been added to the list of summary statistics and a frequency distribution of each variable is presented.

The means, standard deviations, standard errors, and the percentiles are listed in both metric and English or inch units. The statistics are given first (to the left of the statistics' name in the tables) in the type of units in which the data were measured and then in the converted units. The intervals in the frequency tables follow the same order.

The traditional statistics reported are as follows:

a. The Arithmetic Mean

The arithmetic mean is the most common of the averages; it is what is usually meant when either "mean" or "average" is used without modification. The arithmetic mean of a number of values is the sum of these values divided by the number of the values. For example, since the men measured in this survey weighed a grand total of 321,281 pounds, their mean weight was:

$$\bar{x} = \frac{\sum X}{N} = \frac{321,281}{2006} = 160.16 \text{ pounds}$$

The mean is designated in the statistical literature by several different symbols, the most common being \bar{x} , μ , and M . When more than one set of data is being considered

at the same time, the mean values may be denoted variously as: x, y, z ; or x_1, x_2, x_3 ; or M_x, M_y, M_z ; or M_1, M_2, M_3 ; or μ_x, μ_y, μ_z ; or μ_1, μ_2, μ_3 .

b. The Median

The median, a second average, designates the value of the "man-in-the middle". If all of the subjects in this survey had been lined up in order from the shortest to the tallest, the height (1744 mm) of the man in the middle of the line would be the median height. The definition of the median is identical with that of the 50th percentile, 50 percent of the data being smaller than it is and 50 percent being larger. The value of the median is to be found at the middle of the percentile tables. The procedure used in computing the percentiles and its relationship to the definition of these statistics is discussed below; that discussion is as relevant to the interpretation of the median as it is to that of the other percentile values.

The median and the arithmetic mean have approximately the same values for most of the data gathered in this survey; for these data, the question of whether one or the other is the better average is not important.

c. The Standard Deviation

The standard deviation is the basic measure of variability. If most of a set of data cluster close to their mean value, the standard deviation will be small. If on the other hand, many of the data are either much smaller or much larger than the mean, the standard deviation will be large. By definition, the standard deviation is the square root of the average (i.e., arithmetic mean) of the squared deviations from the mean value. In formula, the standard deviation equals $SD = \sqrt{\sum (x - \bar{x})^2 / N}$, where \sum is the summation operator, x represents the individual values, \bar{x} their arithmetic mean, and N the number of values.

A useful way of conceptualizing the standard deviation is to consider the middle two-thirds of a set of data such as the values of stature. The smallest value in this middle two-thirds will be about one standard deviation below the mean value and the largest value in this set will be roughly equal to the mean value plus one standard deviation. Similarly, the middle 95 percent of the data will have values ranging from approximately two standard deviations below the mean to two standard deviations above it.

The standard deviation is usually designated by SD, S , or σ . Any one of these may be subscripted when several variables are being considered simultaneously. The word "sigma" (σ) is sometimes used verbally to refer to the standard deviation.

d. The Coefficient of Variation

This statistic is a re-statement of the standard deviation as a percent of the mean, and it is usually denoted by the letter V . Thus, $V = 100 SD/\bar{x}$. The relationships which were noted for the standard deviation have equivalent forms in terms of V . Thus, about

two-thirds of a set of data will lie between $(100 - V)$ percent and $(100 + V)$ percent of the mean, while about 95 percent will lie between $(100 - 2V)$ percent and $(100 + 2V)$ percent of the mean.

For many anthropometric variables, the coefficient of variation varies within a much narrower range than does the standard deviation. The value of V is often associated with the general anatomical nature of the variable involved. Long bone lengths (major heights, arm length, and so forth) tend to have coefficients of variation in the 3.5 to 5 percent range, while fleshy circumferences have coefficients which range from 6 percent to 10 percent.

e. The Percentiles

This group of statistics belongs to a class of measures designated as "measures of order or position". These measures can be thought of as being obtained by arranging the data in order from the smallest value up the largest one and then observing the value of the datum which lies at a specified position in the array. The smallest value, the next-to-the-largest value, the middle value, and the like are examples of this type of statistic.

Perhaps the most useful of these statistics are the percentiles. The 99 percentiles--ranging from the 1st up to the 99th-- are the values at points which separate consecutive blocks or units of one percent of the data in the ordered array. The first percentile is the value which separates the smallest one percent of the data from the 99 percent of the data with larger values, and the second percentile separates the smallest two percent from the larger 98 percent.

Twenty-five of these percentiles: the 1st, 2nd, 3rd, 97th, 98th, 99th, plus the h -th for all values of h which are multiples of 5, are listed for each anthropometric variable. Several of the listed percentiles have additional names: in particular, the 50th percentile is the median, the 25th, 50th, and 75th are the 1st, 2nd, and 3rd quartiles, and the 10th, 20th, 30th, ..., 90th are the nine deciles.

The percentiles given here are computed by a procedure which follows the spirit rather than the letter of the definition. The reasons for doing this and a description of the computational procedures are given in the section on data processing.

f. The Standard Errors

All statistics computed from a sample of data are subject to the effects of sampling error. When a sample has been selected by a random or other probability sampling process, it is often possible to estimate the magnitude of the sampling error. For many statistics, this estimate takes the form of the standard error of the statistic. The standard error is a standard deviation type statistic and is such that were a large number of samples of the data selected in the same way from the same population, about two-thirds of the samples would have means (or standard deviations or percentiles) with values which lie

within one standard error of the corresponding population statistic and 95 percent within two standard errors. Hence, it is conventional to suppose, when dealing with the statistics computed from a single sample, that the population statistics may well be within a standard error — up or down — of the corresponding sample statistics, and that it is rather likely that they are within two standard errors.

Each statistic has its own standard error, the value of which depends on the statistic, on the sample size, and often on the standard deviation of the data. The standard errors of the most common statistics (except the range) are, for the large samples, inversely proportional in size to the square root of the sample size.

For each variable the standard error of the mean (SD/\sqrt{N}) and that of the standard deviation ($SD/\sqrt{2N}$) are listed. The standard errors of the other statistics used in this report can be computed using the following formulas:

Statistic	Standard Error
30th through 70th Percentiles	1.3 SE of the Mean
20th, 25th, 75th, and 80th Percentiles	1.4 SE of the Mean
15th and 85th Percentiles	1.5 SE of the Mean
10th and 90th Percentiles	1.7 SE of the Mean
5th and 95th Percentiles	2.1 SE of the Mean
3rd and 97th Percentiles	2.5 SE of the Mean
2nd and 98th Percentiles	2.9 SE of the Mean
1st and 99th Percentiles	3.7 SE of the Mean
Coefficient of Variation	$V/\sqrt{2N}$
Beta I	$\sqrt{6/N}$
Beta II	$\sqrt{24/N}$

The standard error is variously designated as SE, $SE(\xi)$ where ξ is the statistic involved, or $\sigma(\xi)$. When a statistic is presented as "164.28 \pm 0.93", the value "0.93" is usually (though not always) the standard error of that statistic.

The standard error is a well-established statistic of widespread use, and it is generally expected that the various standard error values and a discussion of them will be included in a report of this type. Nevertheless, since probability sampling was not used in this survey, it is not clear what relationship exists between these standard errors and the actual sampling errors of the statistics reported here. A similar comment can, of course, be made about the sampling errors for all other large-scale anthropometric surveys.

The standard errors of the mean, the standard deviation, and the central percentiles are, in any event, generally rather small, most of them being less than one millimeter, a value of no real significance in evaluating these statistics.

The two statistics not often listed in military anthropometric reports are:

g. Beta I — A Measure of Symmetry

The statistic β_1 is based on the fact that in a symmetric distribution every value equal to a given amount greater than the mean will be matched by a value an equal amount less than the mean, so that the cubes of the deviations from the mean — half negative and half positive — will add up to zero. Although the converse of this fact is by no means true — a zero sum of the cubed deviations in no way implies a symmetric distribution — the size of this sum when properly adjusted is often considered a useful indication of whether a set of data is unsymmetrically distributed and, if so, how badly. Such a use seems reasonably justified for the kind of data reported here.

Beta I is computed from the sum of the cubed deviations by dividing it by the sample size and the cube of the standard deviation, producing a dimensionless statistic:

$$\beta_1 = \frac{\sum(x - \bar{x})^3}{N \cdot SD^3}$$

h. Beta II — A Measure of Kurtosis

The statistic β_2 is similarly computed from the fourth powers of the deviations:

$$\beta_2 = \frac{\sum(x - \bar{x})^4}{N \cdot SD^4}$$

The interpretation of β_2 is not obvious; its major value, along with β_1 , is that its value provides a basis for judging the level of agreement between the normal distribution and the actual distribution of the data.

The normal distribution values for β_1 and β_2 are 0 and 3. In theory, data distributions can deviate from either of these values without deviating from the other. For the data of this study, however, deviant values of either β_1 or β_2 are usually accompanied by deviant values of the other. Most of these deviant values indicate positive skewness ($\beta_1 > 0$) and platykurtosis ($\beta_2 > 3$).

i. The Frequency Tables

The frequency tables group the data for each variable into a table containing up to fifty intervals. Most of the variables, except those with the smallest ranges, were grouped into intervals 5 or 10 millimeters wide; these intervals always started with values ending in 2.5 mm or 7.5 mm to minimize the effect of any overuse of zero and five as final digits.

The tables list, for each interval, the end points of the intervals in both metric and English (inch) units; the number of men whose measurement falls within the interval

(ACTUAL FREQ): the cumulative frequency (CUMULATIVE-F), that is the number of men whose measurement did not exceed the upper end point of the interval; and these values expressed as percentages of the total number of men measured (PERCENT-FREQ and CUMUL-PCT-FQ).

6. THE ANTHROPOMETRIC DATA

a. Index of Body Measurements

To facilitate ready reference to any body measurement, an index of terms is provided here. The seventy basic body measurements taken in this survey appear in the index in capital letters. Synonymous or alternate terms for body measurements also are included in the index. The listing of body measurements is cross-referenced in order to facilitate the identification of measurements under several different terms. In this way, a particular measurement may be found either by the type of measurement or by body region or area.

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b. Visual Index

In order to further assist those who may not be familiar with the terminology of body measurements, a visual index of the measurements is provided here. The visual index summarizes the seventy body measurements by means of illustrative figures showing the location of each measurement on the body. The sketches (Figures 1 to 7) are arranged to show the seven basic groupings of body measurements: Standing Measurements, Sitting Measurements, Breadth Measurements, Circumferences, Surface Measurements, Head and Face Measurements, and Hand and Foot Measurements.

c. The Anthropometric Data

The detailed data on all of the anthropometric measurements taken during the U. S. Marine Corps survey are presented in this section. These data are based on the total Marine Corps series of 2008 men. The format adopted for the presentation of these data utilizes the direct reproduction of the computer printouts, thus obviating the possible introduction of errors in transcribing and typing the tabular material. The order of presentation of the 70 body measurements which follow is that indicated in the Visual Index.

The metric system (centimeters and millimeters) was used in the measuring. The resulting data are given in centimeters, together with the equivalent values in inches. (To convert to inches, a value in centimeters is multiplied by 0.3937; to convert to centimeters, a value in inches is multiplied by 2.54). Weight was recorded in pounds; the equivalent values in kilograms also are shown. (To convert to kilograms, a value in pounds is multiplied by 0.4536; to convert to pounds, a value in kilograms is multiplied by 2.205).

The data for each measurement are presented on two facing pages. On each right-hand page are the percentile values, from the 1st up to the 99th percentile. Below the percentiles are listed the summary statistics, consisting of the mean, the standard error of the mean (SE(M)), the standard deviation (ST DEV), the standard error of the standard deviation (SE(SD)), the Beta I value indicating symmetry, the Beta II value indicating kurtosis, the coefficient of variation, and the sample size or number of men in the series. A sketch indicating where the measurement was taken on the body also is shown on each right-hand page, together with a description of the measurement, the position of the subject, how the measurement was taken, and the instrument used.

Additional data are presented on each left-handed page. The range of variation for each measurement (from the smallest value up to the largest value) is divided into intervals; these intervals are shown on the left of the page in both centimeters and inches. The frequencies (or distribution) of the men measured are shown on the right, opposite the respective intervals. The first column of frequencies (ACTUAL FREQ) gives the actual frequencies or numbers of men whose measurements fell within the indicated intervals. For example, in the case of stature (page 64), 130 men (of the total series of 2008)

had statures of between 68.80 and 69.18 inches (or 174.75 and 175.74 centimeters). The second column (CUMULATIVE-F) indicates the cumulative frequencies of the men in the series. Thus, 1174 men in this series had statures of 69.18 inches (175.74 centimeters) or less. The third column (PERCENT-FREQ) represents the actual frequencies expressed as percentages of the total series; in other words, 6.47 percent of the 2008 men measured had statures of between 68.80 and 69.18 inches (or 174.75 and 175.74 centimeters). The fourth column (CUMUL-PCT-FQ) shows the cumulative frequencies expressed as percentages; thus, 58.47 percent of the men in this series were 69.18 inches (175.74 centimeters) or less in stature.

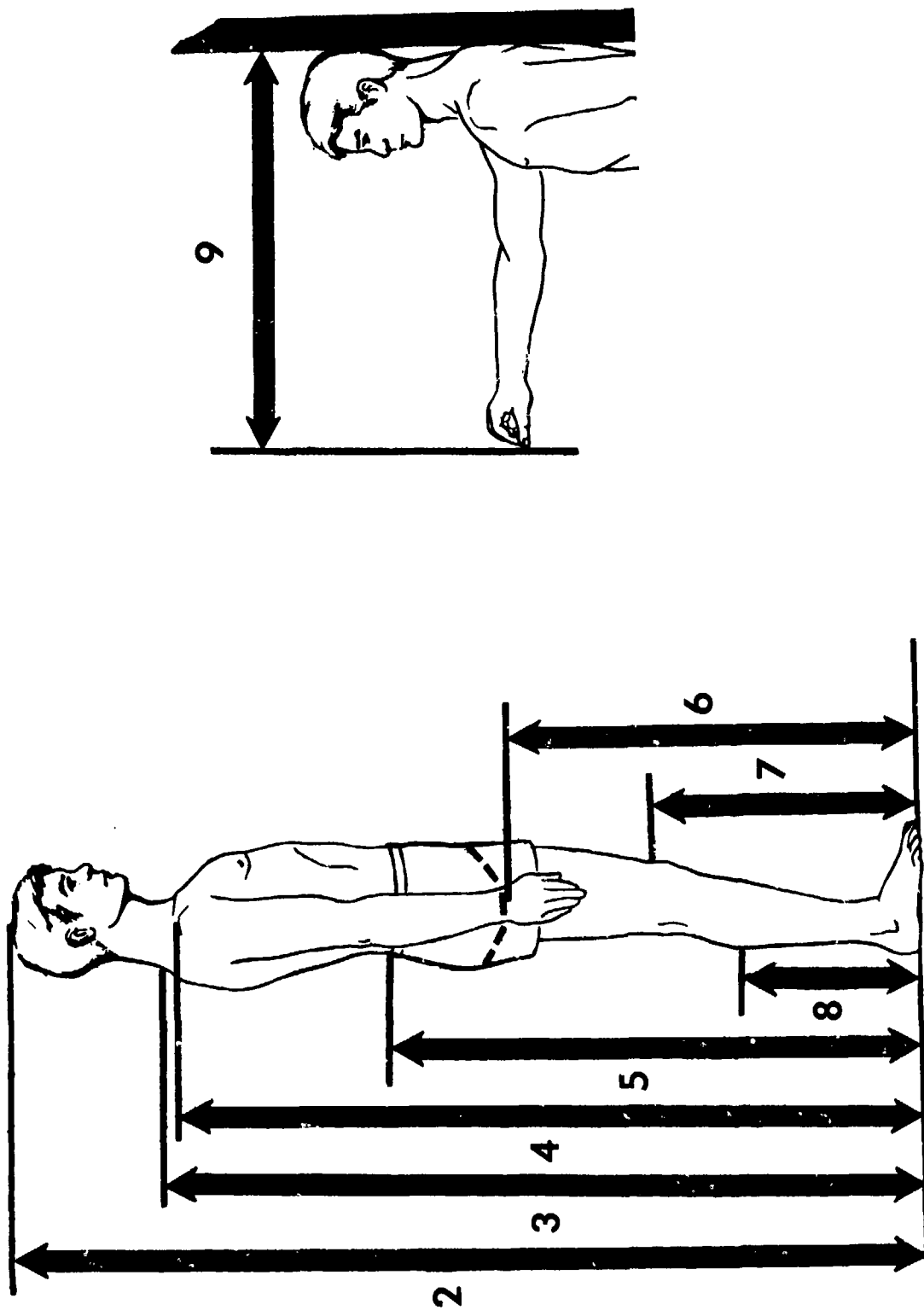


FIGURE 1 — STANDING MEASUREMENTS

(1	Weight)	4	Shoulder Height	7	Kneecap Height
2	Stature	5	Waist Height	8	Calf Height
3	Cervicale Height	6	Crotch Height	9	Functional Reach

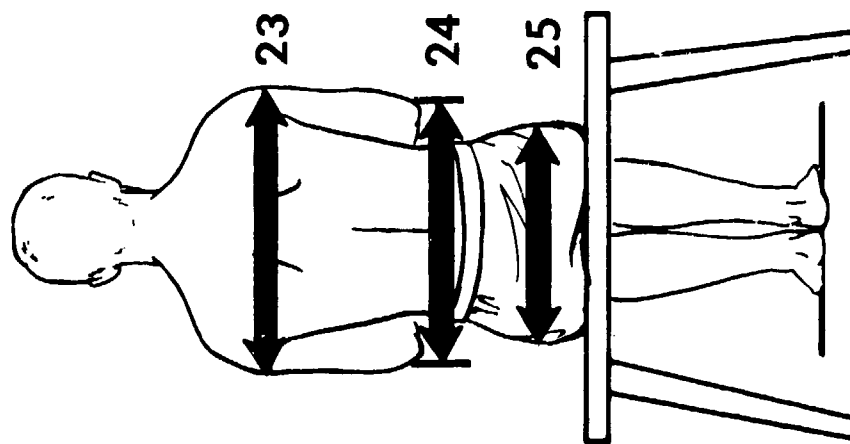
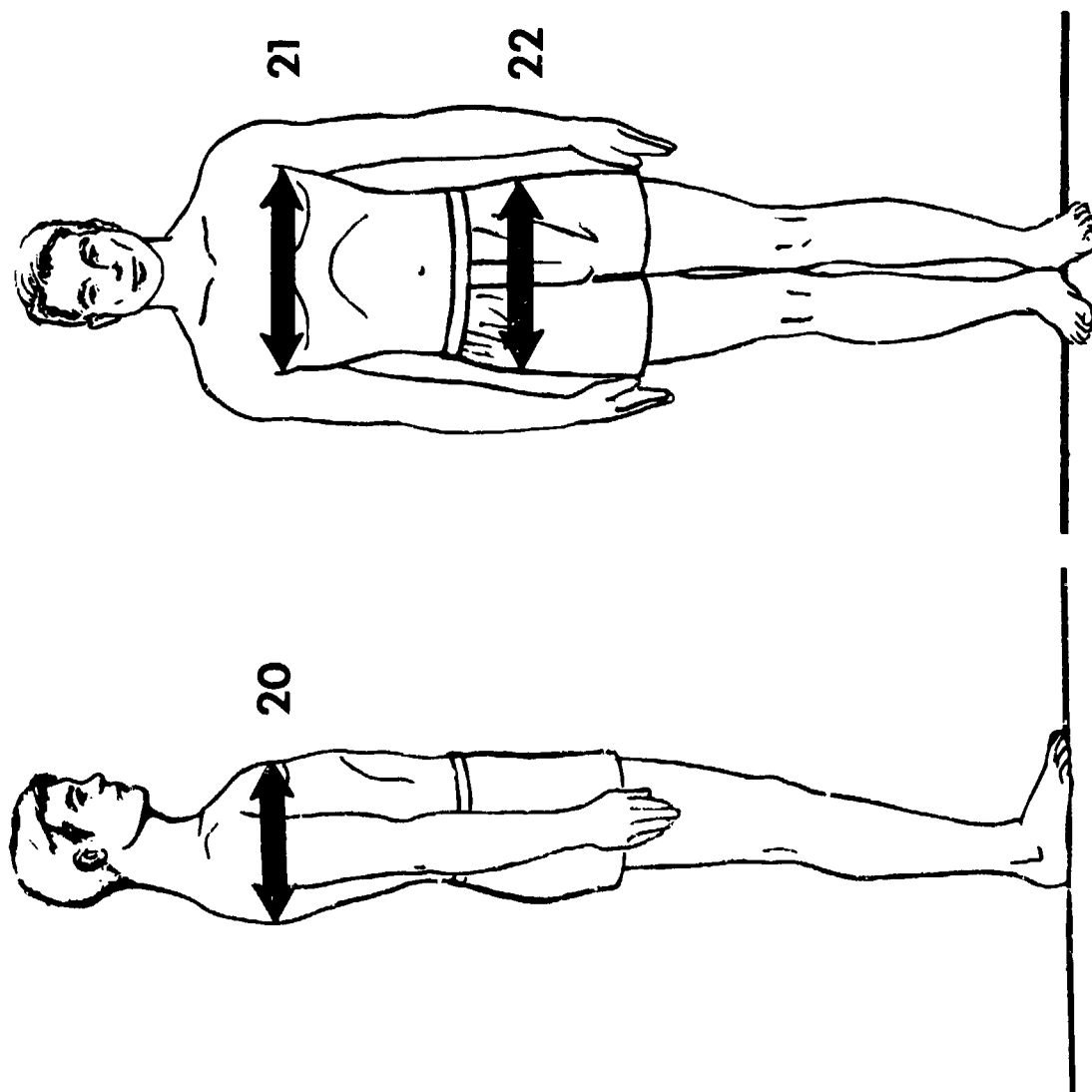


FIGURE 3 — BREADTH MEASUREMENTS

20 Chest Depth
21 Chest Breadth

22 Hip Breadth, Standing
23 Shoulder Breadth

24 Forearm-Forearm Breadth
25 Hip Breadth, Sitting

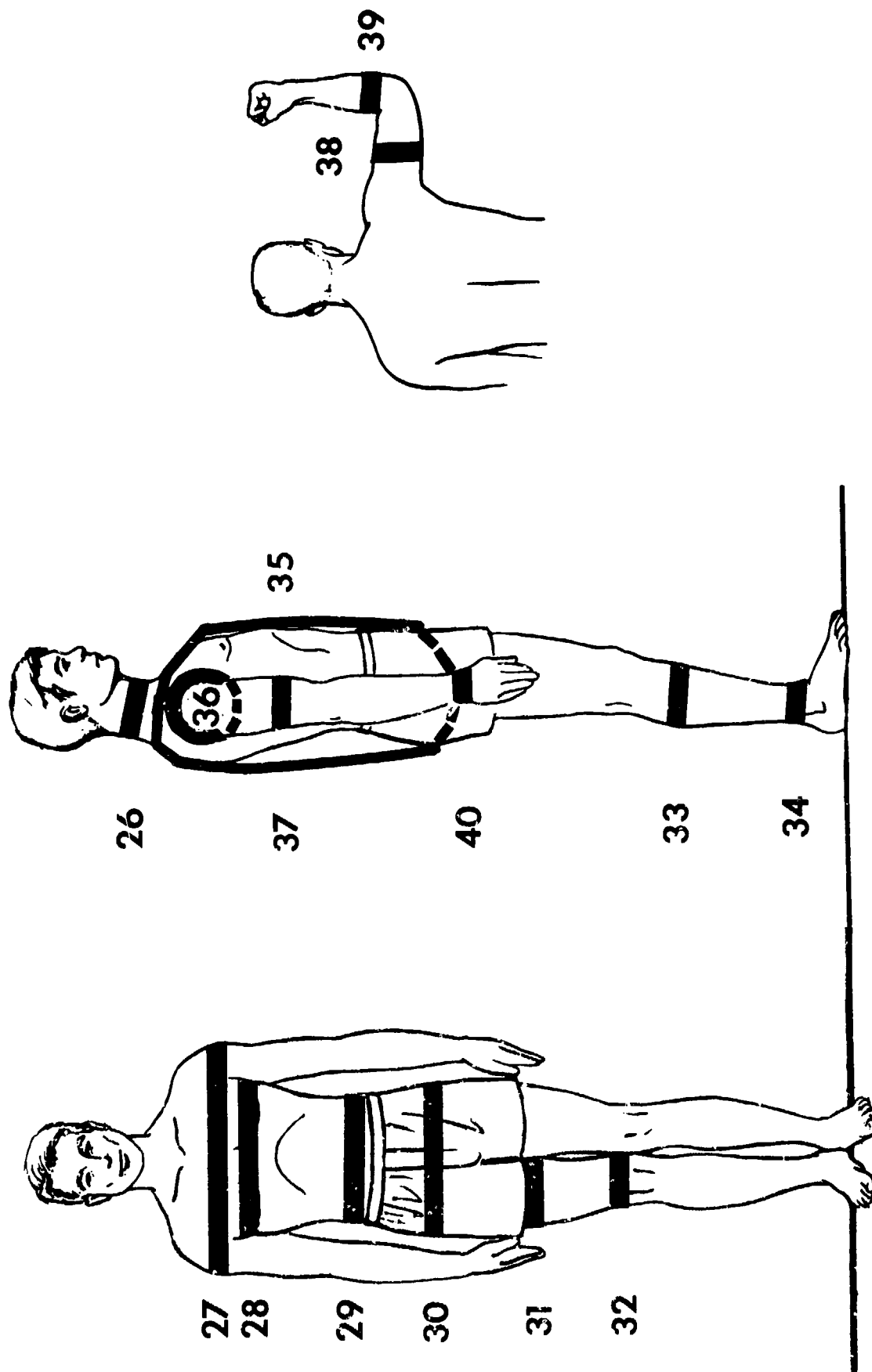


FIGURE 4 - CIRCUMFERENCES

26 Neck Circumference
 27 Shoulder Circumference
 28 Chest Circumference
 29 Waist Circumference
 30 Hip Circumference

31 Upper Thigh Circumference
 32 Lower Thigh Circumference
 33 Calf Circumference
 34 Ankle Circumference
 35 Vertical Trunk Circumference

36 Arm Scye Circumference
 37 Biceps Circum., Relaxed
 38 Biceps Circum., Flexed
 39 Forearm Circum., Flexed
 40 Wrist Circumference

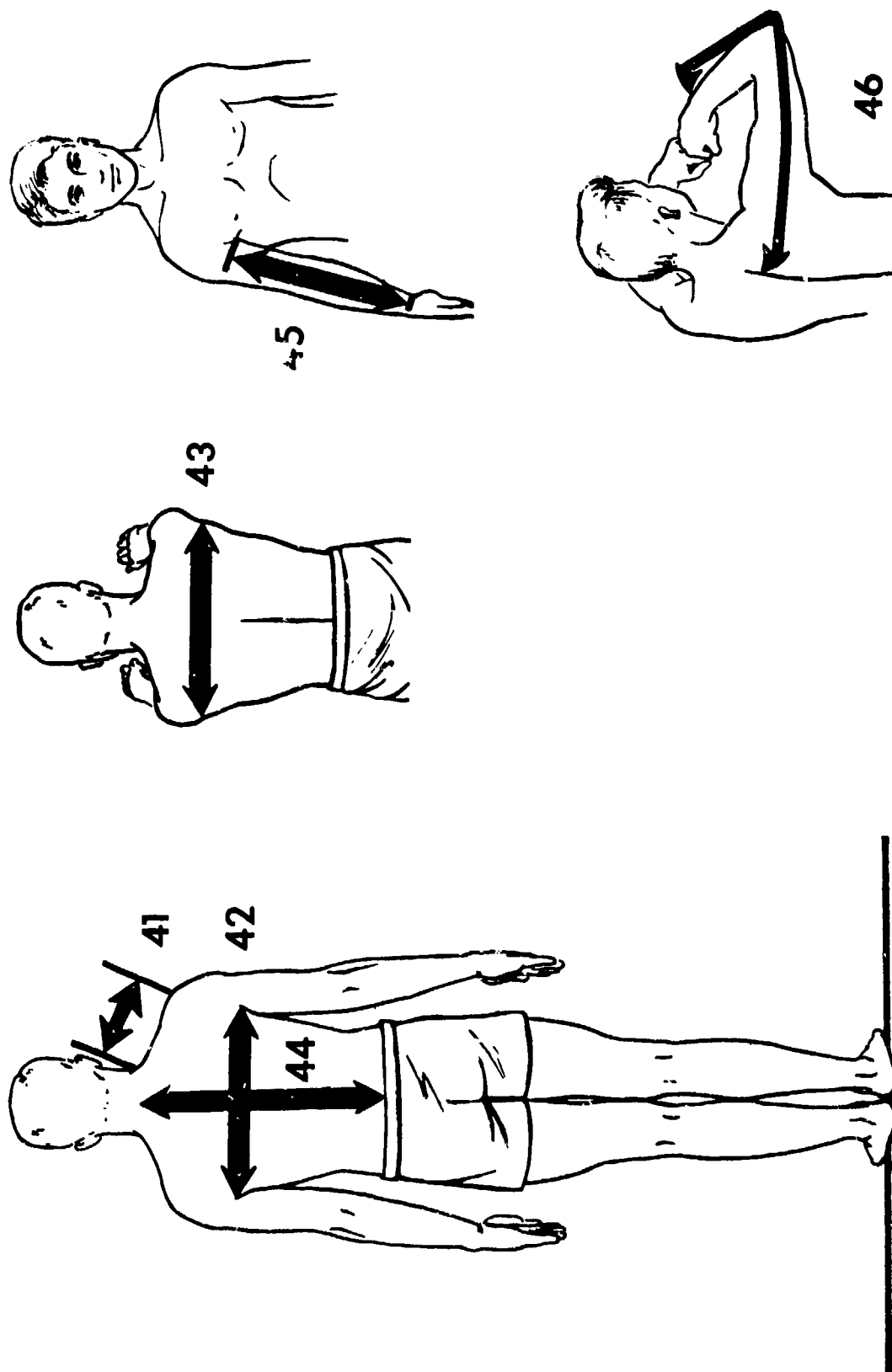


FIGURE 5 — SURFACE MEASUREMENTS

41 Shoulder Length
42 Interscye Breadth

43 Interscye, Maximum
44 Waist Back Length

45 Sleeve Inseam Length
46 Sleeve Length

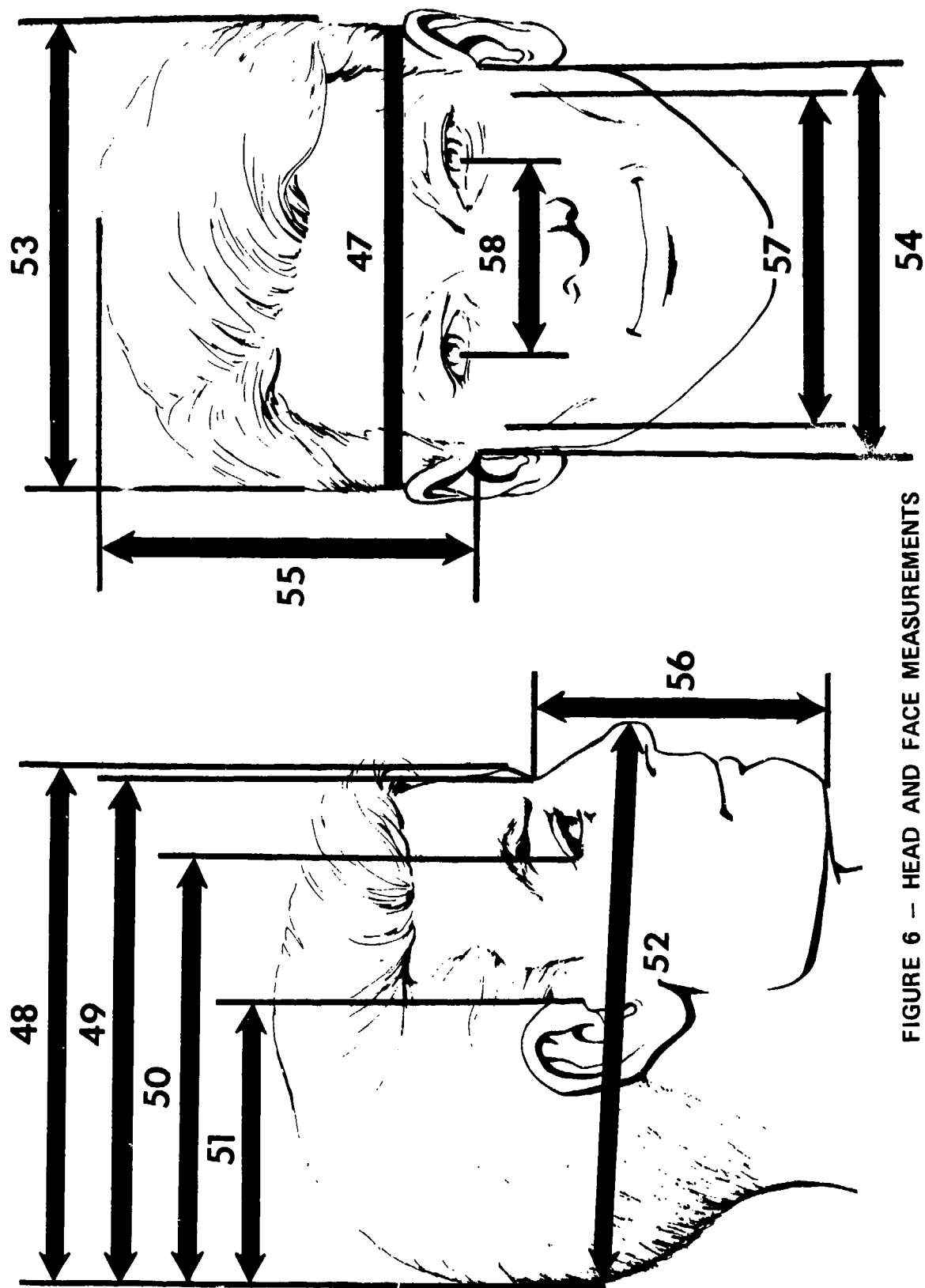


FIGURE 6 - HEAD AND FACE MEASUREMENTS

- | | | |
|-----------------------------|----------------------|---------------------------|
| 47 Head Circumference | 51 Occiput-Trignon | 55 Head Height |
| 48 Head Length | 52 Occiput-Pronasale | 56 Face Length |
| 49 Occiput-Nasal Root | 53 Head Breadth | 57 Face Breadth |
| 50 Occiput-External Canthus | 54 Bitrignon Breadth | 58 Interpupillary Breadth |

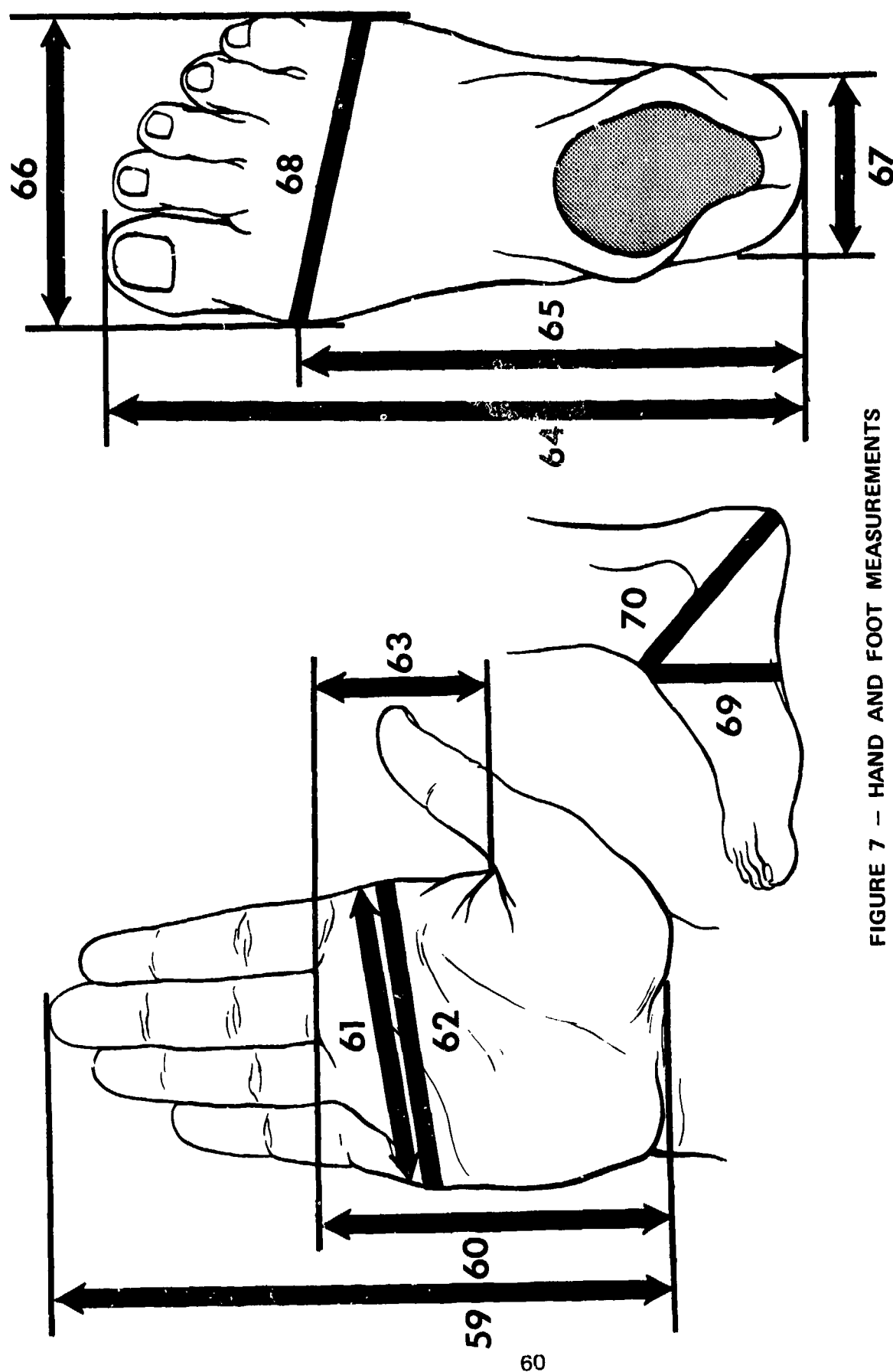


FIGURE 7 - HAND AND FOOT MEASUREMENTS

59 Hand Length
60 Palm Length
61 Hand Breadth
62 Hand Circumference

63 Thumb Crotch Length
64 Foot Length
65 Instep Length
66 Ball of Foot Breadth

67 Heel Breadth
68 Ball of Foot Circumference
69 Instep Circumference
70 Heel-Ankle Circumference

1 Weight

--INTERVALS--		--FREQUENCIES--				
POUNDS		KILOGRAMS	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
244.50-	247.49	110.90-112.25	1	2006	0.05	100.00
241.50-	244.49	109.54-110.89	1	2005	0.05	99.95
238.50-	241.49	108.18-109.53	0	2004	0.00	99.90
235.50-	238.49	106.82-108.17	0	2004	0.00	99.90
232.50-	235.49	105.46-106.81	3	2004	0.15	99.90
229.50-	232.49	104.10-105.45	1	2001	0.05	99.75
226.50-	229.49	102.74-104.09	1	2000	0.05	99.70
223.50-	226.49	101.38-102.73	3	1999	0.15	99.65
220.50-	223.49	100.02-101.37	2	1996	0.10	99.50
217.50-	220.49	98.66-100.01	3	1994	0.15	99.40
214.50-	217.49	97.30- 98.65	3	1991	0.15	99.25
211.50-	214.49	95.93- 97.29	5	1988	0.25	99.10
208.50-	211.49	94.57- 95.92	9	1983	0.45	98.85
205.50-	208.49	93.21- 94.56	6	1974	0.30	98.40
202.50-	205.49	91.85- 93.20	13	1968	0.65	98.11
199.50-	202.49	90.49- 91.84	21	1955	1.05	97.46
196.50-	199.49	89.13- 90.48	10	1934	0.50	96.41
193.50-	196.49	87.77- 89.12	40	1924	1.99	95.91
190.50-	193.49	86.41- 87.76	27	1884	1.35	93.92
187.50-	190.49	85.05- 86.40	36	1857	1.79	92.57
184.50-	187.49	83.69- 85.04	48	1821	2.39	90.78
181.50-	184.49	82.33- 83.68	43	1773	2.14	88.38
178.50-	181.49	80.97- 82.32	63	1730	3.14	86.24
175.50-	178.49	79.61- 80.96	50	1667	2.49	83.10
172.50-	175.49	78.24- 79.60	108	1617	5.38	80.61
169.50-	172.49	76.88- 78.23	123	1509	6.13	75.22
166.50-	169.49	75.52- 76.87	71	1386	3.54	69.09
163.50-	166.49	74.16- 75.51	129	1315	6.43	65.55
160.50-	163.49	72.80- 74.15	79	1186	3.94	59.12
157.50-	160.49	71.44- 72.79	147	1107	7.33	55.18
154.50-	157.49	70.08- 71.43	130	960	6.48	47.86
151.50-	154.49	68.72- 70.07	93	830	4.64	41.38
148.50-	151.49	67.36- 68.71	131	737	6.53	36.74
145.50-	148.49	66.00- 67.35	89	606	4.44	30.21
142.50-	145.49	64.64- 65.99	140	517	6.98	25.77
139.50-	142.49	63.28- 64.63	129	377	6.43	18.79
136.50-	139.49	61.92- 63.27	52	248	2.59	12.36
133.50-	136.49	60.55- 61.91	69	196	3.44	9.77
130.50-	133.49	59.19- 60.54	31	127	1.55	6.33
127.50-	130.49	57.83- 59.18	39	96	1.94	4.79
124.50-	127.49	56.47- 57.82	28	57	1.40	2.84
121.50-	124.49	55.11- 56.46	13	29	0.65	1.45
118.50-	121.49	53.75- 55.10	8	16	0.40	0.80
115.50-	118.49	52.39- 53.74	6	8	0.30	0.40
112.50-	115.49	51.03- 52.38	1	2	0.05	0.10
109.50-	112.49	49.67- 51.02	1	1	0.05	0.05

1 Weight

PERCENTILES

POUNDS		KILOGRAMS
212.92	99 TH	96.58
205.62	98 TH	93.27
201.10	97 TH	91.22
195.09	95 TH	88.49
186.19	90 TH	84.46
180.42	85 TH	81.84
176.01	80 TH	79.84
172.29	75 TH	78.15
169.05	70 TH	76.68
166.13	65 TH	75.36
163.42	60 TH	74.12
160.85	55 TH	72.96
158.37	50 TH	71.83
155.93	45 TH	70.73
153.54	40 TH	69.64
151.11	35 TH	68.54
148.63	30 TH	67.42
146.01	25 TH	66.23
143.18	20 TH	64.95
140.03	15 TH	63.52
136.24	10 TH	61.80
131.01	5 TH	59.43
127.87	3 RD	58.00
125.69	2 ND	57.01
122.46	1 ST	55.55

Weight: The subject is weighed on spring scales, while wearing only undershorts. Weight is recorded to the nearest pound.

THE SUMMARY STATISTICS

....

POUNDS		KILOGRAMS
160.16	MEAN	72.65
0.44	SE(M)	0.20
19.67	ST DEV	8.92
0.31	SE(SD)	0.14

....

SYMMETRY--BETA I = 0.56
KURTOSIS--BETA II = 3.46
COEFFICIENT OF VARIATION = 12.28

....

SAMPLE SIZE = 2006

2 Stature

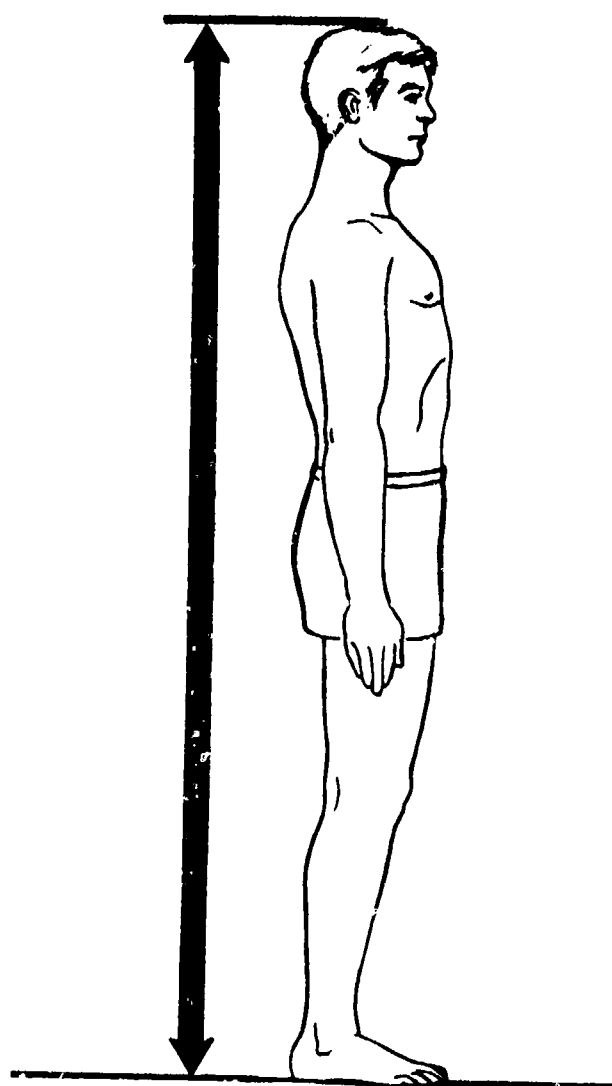
--INTERVALS--

--FREQUENCIES--

CENTIMETERS	INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
195.75- 196.74	77.07- 77.45	1	2008	0.05	100.00
194.75- 195.74	76.67- 77.06	0	2007	0.00	99.95
193.75- 194.74	76.28- 76.66	0	2007	0.00	99.95
192.75- 193.74	75.89- 76.27	2	2007	0.10	99.95
191.75- 192.74	75.49- 75.88	3	2005	0.15	99.85
190.75- 191.74	75.10- 75.48	7	2002	0.35	99.70
189.75- 190.74	74.70- 75.09	6	1995	0.30	99.35
188.75- 189.74	74.31- 74.69	16	1989	0.80	99.05
187.75- 188.74	73.92- 74.30	16	1973	0.80	98.26
186.75- 187.74	73.52- 73.91	20	1957	1.00	97.46
185.75- 186.74	73.13- 73.51	23	1937	1.15	96.46
184.75- 185.74	72.74- 73.12	29	1914	1.44	95.32
183.75- 184.74	72.34- 72.73	28	1885	1.39	93.87
182.75- 183.74	71.95- 72.33	41	1857	2.04	92.48
181.75- 182.74	71.56- 71.94	61	1816	3.04	90.44
180.75- 181.74	71.16- 71.55	65	1755	3.24	87.40
179.75- 180.74	70.77- 71.15	92	1690	4.58	84.16
178.75- 179.74	70.37- 70.76	98	1598	4.88	79.58
177.75- 178.74	69.98- 70.36	115	1500	5.73	74.70
176.75- 177.74	69.59- 69.97	108	1385	5.38	68.97
175.75- 176.74	69.19- 69.58	103	1277	5.13	63.60
174.75- 175.74	68.80- 69.18	130	1174	6.47	58.47
173.75- 174.74	68.41- 68.79	127	1044	6.32	51.99
172.75- 173.74	68.01- 68.40	126	917	6.27	45.67
171.75- 172.74	67.62- 68.00	120	791	5.98	39.39
170.75- 171.74	67.22- 67.61	111	671	5.53	33.42
169.75- 170.74	66.83- 67.21	104	560	5.18	27.89
168.75- 169.74	66.44- 66.82	79	456	3.93	22.71
167.75- 168.74	66.04- 66.43	91	377	4.53	18.77
166.75- 167.74	65.65- 66.03	67	286	3.34	14.24
165.75- 166.74	65.26- 65.64	52	219	2.59	10.91
164.75- 165.74	64.86- 65.25	49	167	2.44	8.32
163.75- 164.74	64.47- 64.85	42	118	2.09	5.88
162.75- 163.74	64.07- 64.46	34	76	1.69	3.78
161.75- 162.74	63.68- 64.06	16	42	0.80	2.09
160.75- 161.74	63.29- 63.67	12	26	0.60	1.29
159.75- 160.74	62.89- 63.28	5	14	0.25	0.70
158.75- 159.74	62.50- 62.88	4	9	0.20	0.45
157.75- 158.74	62.11- 62.49	2	5	0.10	0.25
156.75- 157.74	61.71- 62.10	3	3	0.15	0.15

2 Stature

PERCENTILES



CENTIMETERS		INCHES
190.01	99 TH	74.81
188.15	98 TH	74.07
186.97	97 TH	73.61
185.37	95 TH	72.98
182.92	90 TH	72.02
181.27	85 TH	71.37
179.97	80 TH	70.85
178.85	75 TH	70.41
177.85	70 TH	70.02
176.93	65 TH	69.66
176.06	60 TH	69.32
175.23	55 TH	68.99
174.41	50 TH	68.66
173.59	45 TH	68.34
172.77	40 TH	68.02
171.93	35 TH	67.69
171.06	30 TH	67.35
170.12	25 TH	66.98
169.09	20 TH	66.57
167.93	15 TH	66.11
166.51	10 TH	65.55
164.51	5 TH	64.77
163.31	3 RD	64.29
162.48	2 ND	63.97
161.27	1 ST	63.49

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
174.56	MEAN	68.72
0.14	SE(M)	0.06
6.31	ST DEV	2.48
0.10	SE(SD)	0.04

....

SYMMETRY--BETA I	=	0.17
KURTOSIS--BETA II	=	2.84
COEFFICIENT OF VARIATION	=	3.61

....

SAMPLE SIZE = 2008

Stature: Subject stands erect, with heels together and head level. Stature is measured as the vertical distance from the floor to the top of the head (vertex). An anthropometer is used, with the anthropometer arm firmly touching the scalp to compress the hair.

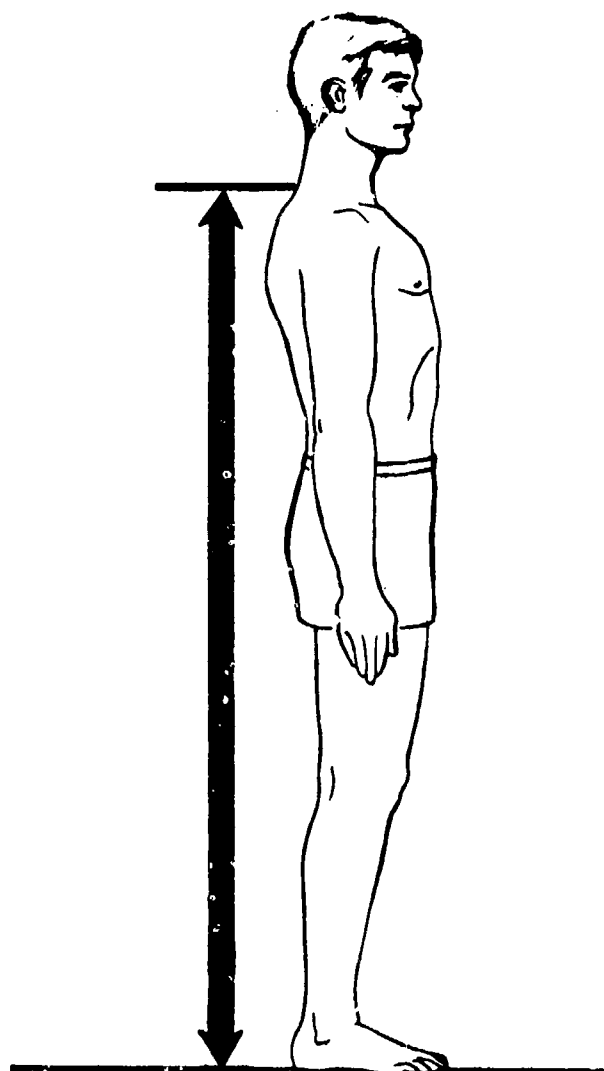
3 Cervicals Height

--INTERVALS--		--FREQUENCIES--					
CENTIMETERS		INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ	
168.75-	169.74	66.44-	66.82	1	2008	0.05	100.00
167.75-	168.74	66.04-	66.43	4	2007	0.20	99.95
166.75-	167.74	65.65-	66.03	2	2003	0.10	99.75
165.75-	166.74	65.26-	65.64	4	2001	0.20	99.65
164.75-	165.74	64.86-	65.25	7	1997	0.35	99.45
163.75-	164.74	64.47-	64.85	7	1990	0.35	99.10
162.75-	163.74	64.07-	64.46	11	1983	0.55	98.75
161.75-	162.74	63.68-	64.06	16	1972	0.80	98.21
160.75-	161.74	63.29-	63.67	25	1956	1.25	97.41
159.75-	160.74	62.89-	63.28	29	1931	1.44	96.17
158.75-	159.74	62.50-	62.88	42	1902	2.09	94.72
157.75-	158.74	62.11-	62.49	47	1860	2.34	92.63
156.75-	157.74	61.71-	62.10	57	1813	2.84	90.29
155.75-	156.74	61.32-	61.70	68	1756	3.39	87.45
154.75-	155.74	60.93-	61.31	82	1688	4.08	84.06
153.75-	154.74	60.53-	60.92	95	1606	4.73	79.98
152.75-	153.74	60.14-	60.52	118	1511	5.88	75.25
151.75-	152.74	59.74-	60.13	114	1393	5.68	69.37
150.75-	151.74	59.35-	59.73	96	1279	4.78	63.70
149.75-	150.74	58.96-	59.34	126	1183	6.27	58.91
148.75-	149.74	58.56-	58.95	149	1057	7.42	52.64
147.75-	148.74	58.17-	58.55	130	908	6.47	45.22
146.75-	147.74	57.78-	58.16	98	778	4.88	38.75
145.75-	146.74	57.38-	57.77	109	680	5.43	33.86
144.75-	145.74	56.99-	57.37	121	571	6.03	28.44
143.75-	144.74	56.59-	56.98	103	450	5.13	22.41
142.75-	143.74	56.20-	56.58	88	347	4.38	17.28
141.75-	142.74	55.81-	56.19	77	259	3.83	12.90
140.75-	141.74	55.41-	55.80	46	182	2.29	9.06
139.75-	140.74	55.02-	55.40	44	136	2.19	6.77
138.75-	139.74	54.63-	55.01	30	92	1.49	4.58
137.75-	138.74	54.23-	54.62	22	62	1.10	3.09
136.75-	137.74	53.84-	54.22	15	40	0.75	1.99
135.75-	136.74	53.44-	53.83	9	25	0.45	1.25
134.75-	135.74	53.05-	53.43	9	16	0.45	0.80
133.75-	134.74	52.66-	53.04	5	7	0.25	0.35
132.75-	133.74	52.26-	52.65	1	2	0.05	0.10
131.75-	132.74	51.87-	52.25	1	1	0.05	0.05

3 Cervicale Height

PERCENTILES

CENTIMETERS		INCHES
164.31	99 TH	64.69
162.61	98 TH	64.02
161.51	97 TH	63.59
159.99	95 TH	62.99
157.63	90 TH	62.06
156.03	85 TH	61.43
154.77	80 TH	60.93
153.68	75 TH	60.50
152.72	70 TH	60.12
151.83	65 TH	59.78
151.00	60 TH	59.45
150.20	55 TH	59.13
149.41	50 TH	58.82
148.63	45 TH	58.52
147.85	40 TH	58.21
147.05	35 TH	57.90
146.22	30 TH	57.57
145.33	25 TH	57.22
144.35	20 TH	56.83
143.24	15 TH	56.39
141.86	10 TH	55.85
139.87	5 TH	55.07
138.62	3 RD	54.57
137.71	2 ND	54.22
136.30	1 ST	53.66



Cervicale Height: Subject stands erect, with heels together and head level. Cervicale height is measured as the vertical distance from the floor to the cervical point (the bony protrusion of the 7th cervical vertebra at the base of the neck). An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
149.59	MEAN	58.89
0.14	SE(M)	0.05
6.10	ST DEV	2.40
0.10	SE(SD)	0.04

....

SYMMETRY--BETA I = 0.16
KURTOSIS--BETA II = 2.84
COEFFICIENT OF VARIATION = 4.08

....

SAMPLE SIZE = 2038

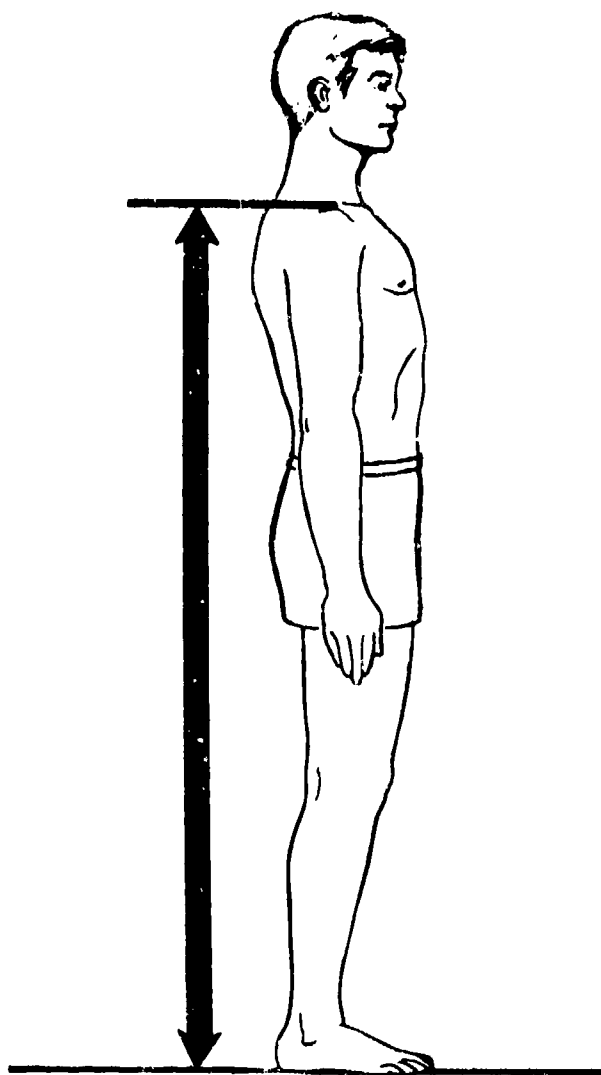
4 Shoulder Height

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS	INCHES	ACTUAL FREQ		CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ	
163.25- 164.24	64.27- 64.66	1		2008	0.05	100.00	
162.25- 163.24	63.88- 64.26	2		2007	0.10	99.95	
161.25- 162.24	63.48- 63.87	4		2005	0.20	99.85	
160.25- 161.24	63.09- 63.47	3		2001	0.15	99.65	
159.25- 160.24	62.70- 63.08	4		1998	0.20	99.50	
158.25- 159.24	62.30- 62.69	9		1994	0.45	99.30	
157.25- 158.24	61.91- 62.29	11		1985	0.55	98.85	
156.25- 157.24	61.52- 61.90	18		1974	0.90	98.31	
155.25- 156.24	61.12- 61.51	23		1956	1.15	97.41	
154.25- 155.24	60.73- 61.11	27		1933	1.34	96.26	
153.25- 154.24	60.33- 60.72	30		1906	1.49	94.92	
152.25- 153.24	59.94- 60.32	42		1876	2.09	93.43	
151.25- 152.24	59.55- 59.93	50		1834	2.49	91.33	
150.25- 151.24	59.15- 59.54	62		1784	3.09	88.84	
149.25- 150.24	58.76- 59.14	89		1722	4.43	85.76	
148.25- 149.24	58.37- 58.75	93		1633	4.63	81.32	
147.25- 148.24	57.97- 58.36	99		1540	4.93	76.69	
146.25- 147.24	57.58- 57.96	132		1441	6.57	71.76	
145.25- 146.24	57.19- 57.57	129		1309	6.42	65.19	
144.25- 145.24	56.79- 57.18	114		1180	5.68	58.76	
143.25- 144.24	56.40- 56.78	145		1066	7.22	53.09	
142.25- 143.24	56.00- 56.39	126		921	6.27	45.87	
141.25- 142.24	55.61- 55.99	131		795	6.52	39.59	
140.25- 141.24	55.22- 55.60	116		664	5.78	33.07	
139.25- 140.24	54.82- 55.21	101		548	5.03	27.29	
138.25- 139.24	54.43- 54.81	105		447	5.23	22.26	
137.25- 138.24	54.04- 54.42	89		342	4.43	17.03	
136.25- 137.24	53.64- 54.03	55		253	2.74	12.60	
135.25- 136.24	53.25- 53.63	60		198	2.99	9.86	
134.25- 135.24	52.85- 53.24	48		138	2.39	6.87	
133.25- 134.24	52.46- 52.84	29		90	1.44	4.48	
132.25- 133.24	52.07- 52.45	19		61	0.95	3.04	
131.25- 132.24	51.67- 52.06	23		42	1.15	2.09	
130.25- 131.24	51.28- 51.66	8		19	0.40	0.95	
129.25- 130.24	50.89- 51.27	5		11	0.25	0.55	
128.25- 129.24	50.49- 50.88	4		6	0.20	0.30	
127.25- 128.24	50.10- 50.48	1		2	0.05	0.10	
126.25- 127.24	49.70- 50.09	0		1	0.00	0.05	
125.25- 126.24	49.31- 49.69	1		1	0.05	0.05	

4 Shoulder Height

PERCENTILES

CENTIMETERS		INCHES
158.72	99 TH	62.49
156.86	93 TH	61.76
155.71	97 TH	61.30
154.16	95 TH	60.69
151.81	90 TH	59.77
150.25	85 TH	59.15
149.02	80 TH	58.67
147.97	75 TH	58.26
147.04	70 TH	57.89
146.18	65 TH	57.55
145.37	60 TH	57.23
144.59	55 TH	56.93
143.82	50 TH	56.62
143.06	45 TH	56.32
142.29	40 TH	56.02
141.51	35 TH	55.71
140.69	30 TH	55.39
139.80	25 TH	55.04
138.83	20 TH	54.66
137.72	15 TH	54.22
136.36	10 TH	53.68
134.42	5 TH	52.92
133.23	3 RD	52.45
132.39	2 ND	52.12
131.15	1 ST	51.63



Shoulder Height (Acromiale Height):
Shoulder height is measured as the vertical distance from the floor to the outer point (acromion) of the right shoulder. An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
143.98	MEAN	56.69
0.13	SE(M)	0.05
5.96	ST DEV	2.35
0.09	SE(SD)	0.04

....

SYMMETRY--BETA I = 0.17
KURTOSIS--BETA II = 2.91
COEFFICIENT OF VARIATION = 4.14

....

SAMPLE SIZE = 2008

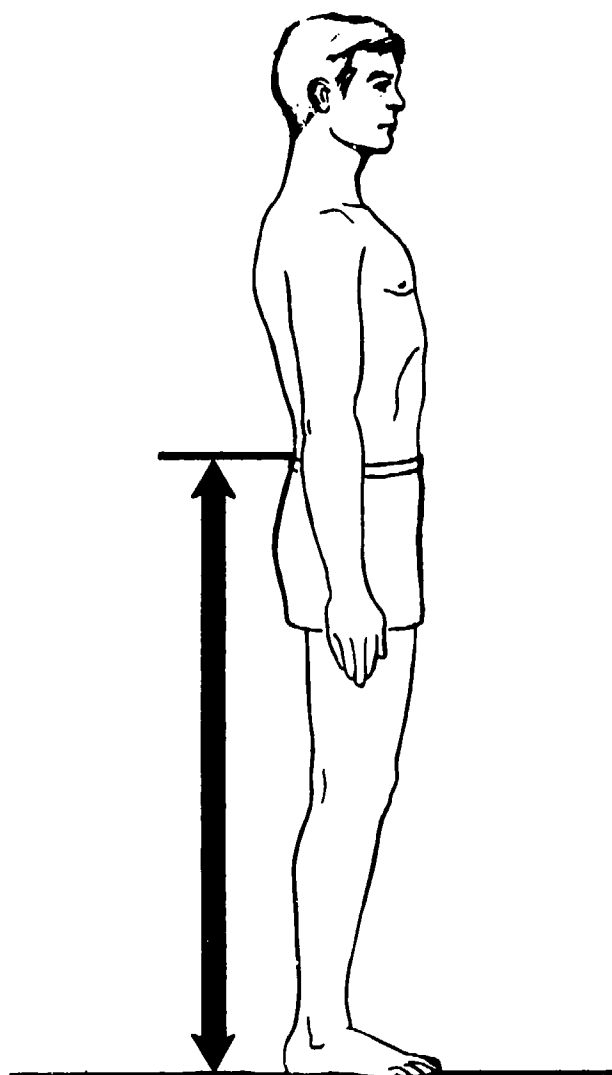
5 Waist Height

--INTERVALS--		--FREQUENCIES--			
CENTIMETERS	INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
122.25- 123.24	48.13- 48.51	2	2008	0.10	100.00
121.25- 122.24	47.74- 48.12	0	2006	0.00	99.90
120.25- 121.24	47.34- 47.73	2	2006	0.10	99.90
119.25- 120.24	46.95- 47.33	3	2004	0.15	99.80
118.25- 119.24	46.56- 46.94	12	2001	0.60	99.65
117.25- 118.24	46.16- 46.55	20	1989	1.00	99.05
116.25- 117.24	45.77- 46.15	20	1969	1.00	98.06
115.25- 116.24	45.37- 45.76	29	1949	1.44	97.06
114.25- 115.24	44.98- 45.36	43	1920	2.14	95.62
113.25- 114.24	44.59- 44.97	44	1877	2.19	93.48
112.25- 113.24	44.19- 44.58	59	1833	2.94	91.28
111.25- 112.24	43.80- 44.18	72	1774	3.59	88.35
110.25- 111.24	43.41- 43.79	106	1702	5.28	84.76
109.25- 110.24	43.01- 43.40	103	1596	5.13	79.48
108.25- 109.24	42.62- 43.00	138	1493	6.87	74.35
107.25- 108.24	42.22- 42.61	138	1355	6.87	67.48
106.25- 107.24	41.83- 42.21	135	1217	6.72	60.61
105.25- 106.24	41.44- 41.82	207	1082	10.31	53.88
104.25- 105.24	41.04- 41.43	122	875	6.08	43.58
103.25- 104.24	40.65- 41.03	154	753	7.67	37.50
102.25- 103.24	40.26- 40.64	129	599	6.42	29.83
101.25- 102.24	39.86- 40.25	135	470	6.72	23.41
100.25- 101.24	39.47- 39.85	87	335	4.33	16.68
99.25- 100.24	39.07- 39.46	74	248	3.69	12.35
98.25- 99.24	38.68- 39.06	54	174	2.69	8.67
97.25- 98.24	38.29- 38.67	35	120	1.74	5.98
96.25- 97.24	37.89- 38.28	31	85	1.54	4.23
95.25- 96.24	37.50- 37.88	21	54	1.05	2.69
94.25- 95.24	37.11- 37.49	10	33	0.50	1.64
93.25- 94.24	36.71- 37.10	12	23	0.60	1.15
92.25- 93.24	36.32- 36.70	6	11	0.30	0.55
91.25- 92.24	35.93- 36.31	1	5	0.05	0.25
90.25- 91.24	35.53- 35.92	4	4	0.20	0.20

5 Waist Height

PERCENTILES

CENTIMETERS		INCHES
118.36	99 TH	46.60
117.03	98 TH	46.08
116.13	97 TH	45.72
114.86	95 TH	45.22
112.84	90 TH	44.43
111.46	85 TH	43.88
110.38	80 TH	43.46
109.45	75 TH	43.09
108.63	70 TH	42.77
107.88	65 TH	42.47
107.18	60 TH	42.20
106.51	55 TH	41.93
105.86	50 TH	41.68
105.22	45 TH	41.43
104.58	40 TH	41.17
103.93	35 TH	40.92
103.25	30 TH	40.65
102.53	25 TH	40.36
101.72	20 TH	40.05
100.79	15 TH	39.68
99.61	10 TH	39.21
97.79	5 TH	38.50
96.55	3 RD	38.01
95.58	2 ND	37.63
93.93	1 ST	36.98



Waist Height (Iliocristale Height):
Subject stands erect, with heels together. Waist height is measured as the vertical distance from the floor to the upper edge (iliac crest) of the right hip bone. An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
106.03	MEAN	41.74
0.11	SE(M)	0.05
5.14	ST DEV	2.02
0.08	SE(SD)	0.03

....

SYMMETRY--BETA I = 0.10
KURTOSIS--BETA II = 2.96
COEFFICIENT OF VARIATION = 4.84

....

SAMPLE SIZE = 2008

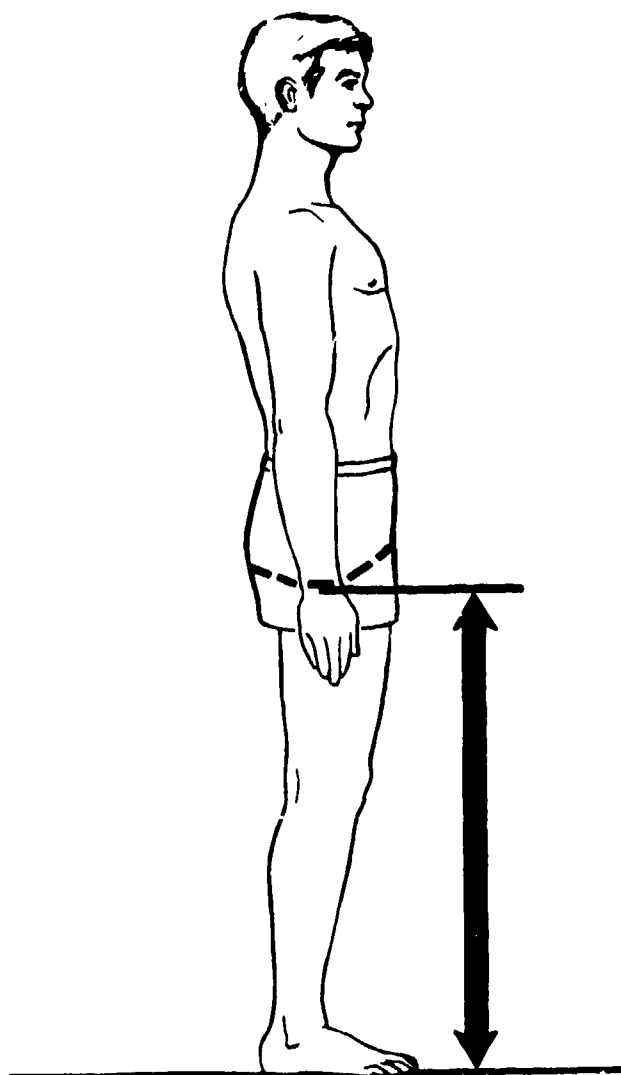
6 Crotch Height

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
98.25-	99.24	38.68-	39.06	2	2008	0.10	100.00
97.25-	98.24	38.29-	38.67	1	2006	0.05	99.90
96.25-	97.24	37.89-	38.28	7	2005	0.35	99.85
95.25-	96.24	37.50-	37.88	6	1998	0.30	99.50
94.25-	95.24	37.11-	37.49	15	1992	0.75	99.20
93.25-	94.24	36.71-	37.10	20	1977	1.00	98.46
92.25-	93.24	36.32-	36.70	27	1957	1.34	97.46
91.25-	92.24	35.93-	36.31	46	1930	2.29	96.12
90.25-	91.24	35.53-	35.92	62	1884	3.09	93.82
89.25-	90.24	35.14-	35.52	72	1822	3.59	90.74
88.25-	89.24	34.74-	35.13	97	1750	4.83	87.15
87.25-	88.24	34.35-	34.73	103	1653	5.13	82.32
86.25-	87.24	33.96-	34.34	153	1550	7.62	77.19
85.25-	86.24	33.56-	33.95	172	1397	8.57	69.57
84.25-	85.24	33.17-	33.55	163	1225	8.12	61.01
83.25-	84.24	32.78-	33.16	171	1062	8.52	52.89
82.25-	83.24	32.38-	32.77	154	891	7.67	44.37
81.25-	82.24	31.99-	32.37	153	737	7.62	36.70
80.25-	81.24	31.59-	31.98	152	584	7.57	29.08
79.25-	80.24	31.20-	31.58	121	432	6.03	21.51
78.25-	79.24	30.81-	31.19	97	311	4.83	15.49
77.25-	78.24	30.41-	30.80	72	214	3.59	10.66
76.25-	77.24	30.02-	30.40	57	142	2.84	7.07
75.25-	76.24	29.63-	30.01	32	85	1.59	4.23
74.25-	75.24	29.23-	29.62	20	53	1.00	2.64
73.25-	74.24	28.84-	29.22	13	33	0.65	1.64
72.25-	73.24	28.45-	28.83	9	20	0.45	1.00
71.25-	72.24	28.05-	28.44	5	11	0.25	0.55
70.25-	71.24	27.66-	28.04	4	6	0.20	0.30
69.25-	70.24	27.26-	27.65	0	2	0.00	0.10
68.25-	69.24	26.87-	27.25	1	2	0.05	0.10
67.25-	68.24	26.48-	26.86	1	1	0.05	0.05

6 Crotch Height

PERCENTILES

CENTIMETERS		INCHES
94.99	99 TH	37.40
93.74	98 TH	36.91
92.92	97 TH	36.58
91.79	95 TH	36.14
90.02	90 TH	35.44
88.81	85 TH	34.97
87.86	80 TH	34.59
87.05	75 TH	34.27
86.32	70 TH	33.99
85.66	65 TH	33.72
85.04	60 TH	33.48
84.44	55 TH	33.24
83.85	50 TH	33.01
83.26	45 TH	32.78
82.68	40 TH	32.55
82.08	35 TH	32.31
81.45	30 TH	32.07
80.78	25 TH	31.80
80.03	20 TH	31.51
79.17	15 TH	31.17
78.08	10 TH	30.74
76.47	5 TH	30.11
75.40	3 RD	29.69
74.60	2 ND	29.37
73.31	1 ST	28.86



THE SUMMARY STATISTICS

CENTIMETERS		INCHES
83.95	MEAN	33.05
0.10	SE(M)	0.04
4.62	ST DEV	1.82
0.07	SE(SD)	0.03

.....
 SYMMETRY--BETA I = 0.07
 KURTOSIS--BETA II = 2.98
 COEFFICIENT OF VARIATION = 5.51

 SAMPLE SIZE = 2008

Crotch Height: Subject stands erect, with his feet initially apart and then brought together after the anthropometer is in place. Crotch height is measured as the vertical distance from the floor (or standing surface) to the crotch. An anthropometer is used, with the anthropometer arm firmly in contact with the highest point in the crotch.

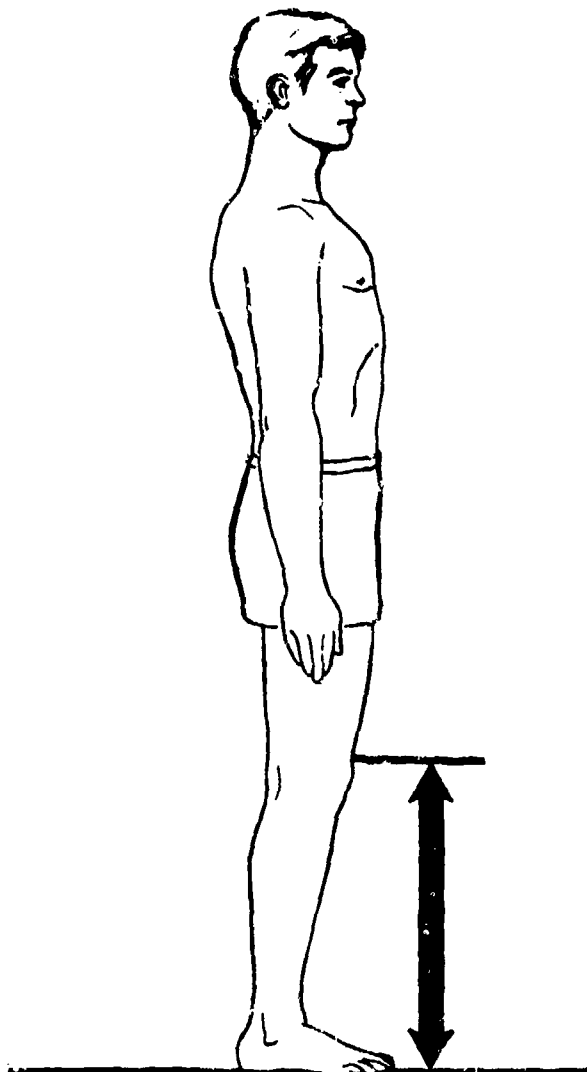
7 Kneecap Height

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
63.75-	64.24	25.10-	25.29	1	2008	0.05	100.00
63.25-	63.74	24.90-	25.09	1	2007	0.05	99.95
62.75-	63.24	24.70-	24.89	4	2006	0.20	99.90
62.25-	62.74	24.51-	24.69	4	2002	0.20	99.70
61.75-	62.24	24.31-	24.50	1	1998	0.05	99.50
61.25-	61.74	24.11-	24.30	6	1997	0.30	99.45
60.75-	61.24	23.92-	24.10	7	1991	0.35	99.15
60.25-	60.74	23.72-	23.91	11	1984	0.55	98.80
59.75-	60.24	23.52-	23.71	13	1973	0.65	98.26
59.25-	59.74	23.33-	23.51	30	1960	1.49	97.61
58.75-	59.24	23.13-	23.32	23	1930	1.15	96.12
58.25-	58.74	22.93-	23.12	33	1907	1.64	94.97
57.75-	58.24	22.74-	22.92	27	1874	1.34	93.33
57.25-	57.74	22.54-	22.73	41	1847	2.04	91.98
56.75-	57.24	22.34-	22.53	45	1806	2.24	89.94
56.25-	56.74	22.15-	22.33	52	1761	2.59	87.70
55.75-	56.24	21.95-	22.14	71	1709	3.54	85.11
55.25-	55.74	21.75-	21.94	85	1638	4.23	81.57
54.75-	55.24	21.56-	21.74	77	1553	3.83	77.34
54.25-	54.74	21.36-	21.55	113	1476	5.63	73.51
53.75-	54.24	21.16-	21.35	122	1363	6.08	67.88
53.25-	53.74	20.96-	21.15	126	1241	6.27	61.80
52.75-	53.24	20.77-	20.95	89	1115	4.43	55.53
52.25-	52.74	20.57-	20.76	121	1026	6.03	51.10
51.75-	52.24	20.37-	20.56	118	905	5.88	45.07
51.25-	51.74	20.18-	20.36	115	787	5.73	39.19
50.75-	51.24	19.98-	20.17	89	672	4.43	33.47
50.25-	50.74	19.78-	19.97	89	583	4.43	29.03
49.75-	50.24	19.59-	19.77	120	494	5.98	24.60
49.25-	49.74	19.39-	19.58	74	374	3.69	18.63
48.75-	49.24	19.19-	19.38	47	300	2.34	14.94
48.25-	48.74	19.00-	19.18	78	253	3.88	12.60
47.75-	48.24	18.80-	18.99	63	175	3.14	8.72
47.25-	47.74	18.60-	18.79	34	112	1.69	5.58
46.75-	47.24	18.41-	18.59	23	78	1.15	3.88
46.25-	46.74	18.21-	18.40	16	55	0.80	2.74
45.75-	46.24	18.01-	18.20	15	39	0.75	1.94
45.25-	45.74	17.82-	18.00	15	24	0.75	1.20
44.75-	45.24	17.62-	17.81	5	9	0.25	0.45
44.25-	44.74	17.42-	17.61	3	4	0.15	0.20
43.75-	44.24	17.22-	17.41	0	1	0.00	0.05
43.25-	43.74	17.03-	17.21	0	1	0.00	0.05
42.75-	43.24	16.83-	17.02	1	1	0.05	0.05

7 Kneecap Height

PERCENTILES

CENTIMETERS		INCHES
61.06	99 TH	24.04
60.10	98 TH	23.66
59.48	97 TH	23.42
58.61	95 TH	23.08
57.27	90 TH	22.55
56.36	85 TH	22.19
55.65	80 TH	21.91
55.03	75 TH	21.67
54.49	70 TH	21.45
53.99	65 TH	21.26
53.52	60 TH	21.07
53.08	55 TH	20.90
52.64	50 TH	20.72
52.21	45 TH	20.55
51.78	40 TH	20.38
51.34	35 TH	20.21
50.88	30 TH	20.03
50.40	25 TH	19.84
49.87	20 TH	19.63
49.27	15 TH	19.40
48.53	10 TH	19.11
47.48	5 TH	18.69
46.82	3 RD	18.43
46.34	2 ND	18.25
45.61	1 ST	17.96



Kneecap Height (Patella Height):
Subject stands erect, with heels together. Kneecap height is measured as the vertical distance from the floor (or standing surface) to the upper edge of the right kneecap (patella). An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
52.78	MEAN	20.78
0.08	SE(M)	0.03
3.36	ST DEV	1.32
0.05	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.23
KURTOSIS--BETA II = 2.85
COEFFICIENT OF VARIATION = 6.38

....

SAMPLE SIZE = 2008

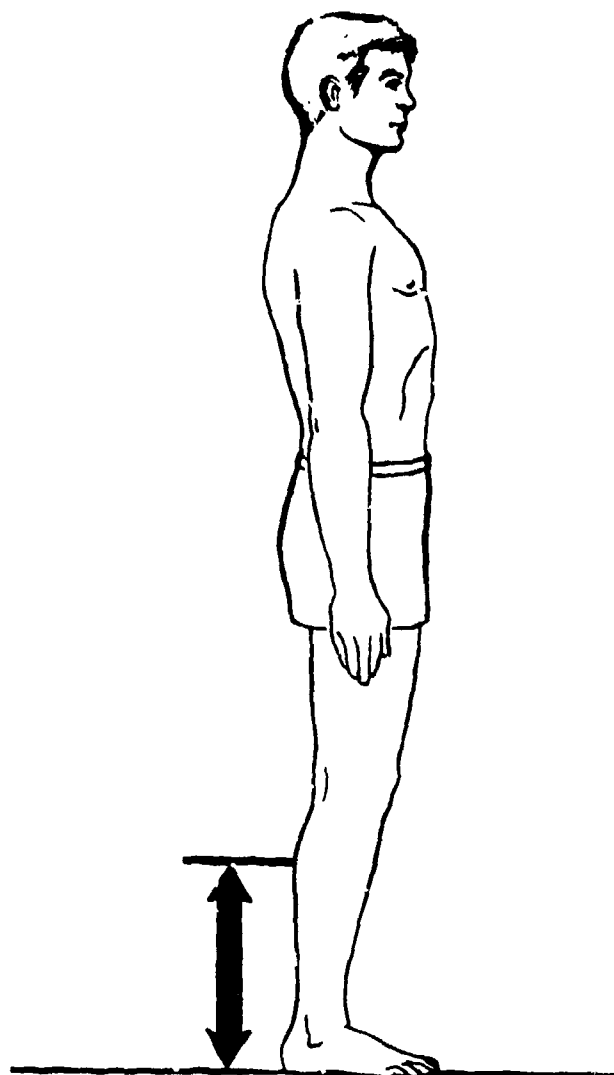
8 Calf Height

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
44.05-	44.44	17.34-	17.49	2	2008	0.10	100.00
43.65-	44.04	17.19-	17.33	1	2006	0.05	99.90
43.25-	43.64	17.03-	17.18	6	2005	0.30	99.85
42.85-	43.24	16.87-	17.02	9	1999	0.45	99.55
42.45-	42.84	16.71-	16.86	1	1990	0.05	99.10
42.05-	42.44	16.56-	16.70	9	1989	0.45	99.05
41.65-	42.04	16.40-	16.55	13	1930	0.65	98.61
41.25-	41.64	16.24-	16.39	24	1967	1.20	97.96
40.85-	41.24	16.08-	16.23	18	1943	0.90	96.76
40.45-	40.84	15.93-	16.07	18	1925	0.90	95.87
40.05-	40.44	15.77-	15.92	31	1907	1.54	94.97
39.65-	40.04	15.61-	15.76	52	1876	2.59	93.43
39.25-	39.64	15.45-	15.60	59	1824	2.94	90.84
38.85-	39.24	15.30-	15.44	66	1765	3.29	87.90
38.45-	38.84	15.14-	15.29	65	1699	3.24	84.61
38.05-	38.44	14.98-	15.13	85	1634	4.23	81.37
37.65-	38.04	14.82-	14.97	106	1549	5.28	77.14
37.25-	37.64	14.67-	14.81	91	1443	4.53	71.86
36.85-	37.24	14.51-	14.66	126	1352	6.27	67.33
36.45-	36.84	14.35-	14.50	99	1226	4.93	61.06
36.05-	36.44	14.19-	14.34	117	1127	5.83	56.13
35.65-	36.04	14.04-	14.18	106	1010	5.28	50.30
35.25-	35.64	13.88-	14.03	103	904	5.13	45.02
34.85-	35.24	13.72-	13.87	114	801	5.68	39.89
34.45-	34.84	13.56-	13.71	132	687	6.57	34.21
34.05-	34.44	13.41-	13.55	90	555	4.48	27.64
33.65-	34.04	13.25-	13.40	87	465	4.33	23.16
33.25-	33.64	13.09-	13.24	97	378	4.83	18.82
32.85-	33.24	12.93-	13.08	57	281	2.84	13.99
32.45-	32.84	12.78-	12.92	44	224	2.19	11.16
32.05-	32.44	12.62-	12.77	36	180	1.79	8.96
31.65-	32.04	12.46-	12.61	36	144	1.79	7.17
31.25-	31.64	12.30-	12.45	27	108	1.34	5.38
30.85-	31.24	12.15-	12.29	32	81	1.59	4.03
30.45-	30.84	11.99-	12.14	12	49	0.60	2.44
30.05-	30.44	11.83-	11.98	15	37	0.75	1.84
29.65-	30.04	11.67-	11.82	7	22	0.35	1.10
29.25-	29.64	11.52-	11.66	5	15	0.25	0.75
28.85-	29.24	11.36-	11.51	7	10	0.35	0.50
28.45-	28.84	11.20-	11.35	1	3	0.05	0.15
28.05-	28.44	11.04-	11.19	2	2	0.10	0.10

8 Calf Height

PERCENTILES

CENTIMETERS		INCHES
42.43	99 TH	16.70
41.68	98 TH	16.41
41.21	97 TH	16.22
40.56	95 TH	15.97
39.56	90 TH	15.57
38.88	85 TH	15.31
38.34	80 TH	15.10
37.88	75 TH	14.91
37.46	70 TH	14.75
37.08	65 TH	14.60
36.72	60 TH	14.46
36.37	55 TH	14.32
36.02	50 TH	14.18
35.68	45 TH	14.05
35.33	40 TH	13.91
34.98	35 TH	13.77
34.60	30 TH	13.62
34.19	25 TH	13.46
33.74	20 TH	13.28
33.22	15 TH	13.08
32.57	10 TH	12.82
31.63	5 TH	12.45
31.02	3 RD	12.21
30.58	2 ND	12.04
29.90	1 ST	11.77



Calf Height: Subject stands erect, with heels together. Calf height is measured as the vertical distance from the floor (or standing surface) to the level of the greatest bulge of the right calf muscle. An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
36.04	MEAN	14.19
0.06	SE(M)	0.02
2.69	ST DEV	1.06
0.04	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.06
KURTOSIS--BETA II = 2.87
COEFFICIENT OF VARIATION = 7.47

....

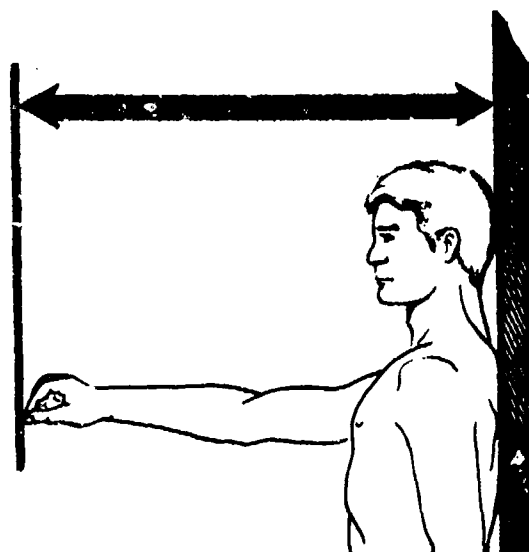
SAMPLE SIZE = 2008

9 Functional Reach

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
96.25-	97.24	37.89-	38.28	1	2008	0.05	100.00
95.25-	96.24	37.50-	37.88	3	2007	0.15	99.95
94.25-	95.24	37.11-	37.49	4	2004	0.20	99.80
93.25-	94.24	36.71-	37.10	4	2000	0.20	99.60
92.25-	93.24	36.32-	36.70	8	1996	0.40	99.40
91.25-	92.24	35.93-	36.31	13	1988	0.65	99.00
90.25-	91.24	35.53-	35.92	19	1975	0.95	98.36
89.25-	90.24	35.14-	35.52	30	1956	1.49	97.41
88.25-	89.24	34.74-	35.13	35	1926	1.74	95.92
87.25-	88.24	34.35-	34.73	38	1891	1.89	94.17
86.25-	87.24	33.96-	34.34	75	1853	3.74	92.28
85.25-	86.24	33.56-	33.95	75	1778	3.74	88.55
84.25-	85.24	33.17-	33.55	97	1703	4.83	84.81
83.25-	84.24	32.78-	33.16	125	1606	6.23	79.98
82.25-	83.24	32.38-	32.77	133	1481	6.62	73.75
81.25-	82.24	31.99-	32.37	165	1348	8.22	67.13
80.25-	81.24	31.59-	31.98	170	1183	8.47	58.91
79.25-	80.24	31.20-	31.58	171	1013	8.52	50.45
78.25-	79.24	30.81-	31.19	156	842	7.77	41.93
77.25-	78.24	30.41-	30.80	153	686	7.62	34.16
76.25-	77.24	30.02-	30.40	141	533	7.02	26.54
75.25-	76.24	29.63-	30.01	106	392	5.28	19.52
74.25-	75.24	29.23-	29.62	88	286	4.38	14.24
73.25-	74.24	28.84-	29.22	72	198	3.59	9.86
72.25-	73.24	28.45-	28.83	47	126	2.34	6.27
71.25-	72.24	28.05-	28.44	28	79	1.39	3.93
70.25-	71.24	27.66-	28.04	23	51	1.15	2.54
69.25-	70.24	27.26-	27.65	15	28	0.75	1.39
68.25-	69.24	26.87-	27.25	7	13	0.35	0.65
67.25-	68.24	26.48-	26.86	4	6	0.20	0.30
66.25-	67.24	26.08-	26.47	2	2	0.10	0.10

9 Functional Reach

PERCENTILES



Functional Reach: Subject stands erect against a wall, with his right arm extended forward horizontally, and with the tips of his thumb and index finger pressed together; his shoulders must remain in contact with the wall. Functional reach is measured as the horizontal distance from the wall to the tip of the thumb. An anthropometer is used.

CENTIMETERS		INCHES
92.34	99 TH	36.35
90.84	98 TH	35.76
89.89	97 TH	35.39
88.61	95 TH	34.89
86.65	90 TH	34.12
85.36	85 TH	33.60
84.35	80 TH	33.21
83.49	75 TH	32.87
82.73	70 TH	32.57
82.04	65 TH	32.30
81.39	60 TH	32.04
80.77	55 TH	31.80
80.16	50 TH	31.56
79.56	45 TH	31.32
78.96	40 TH	31.09
78.35	35 TH	30.84
77.71	30 TH	30.59
77.02	25 TH	30.32
76.26	20 TH	30.02
75.29	15 TH	29.68
74.20	10 TH	29.25
72.70	5 TH	28.62
71.65	3 RD	28.21
70.87	2 ND	27.90
69.63	1 ST	27.41

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
80.33	MEAN	31.63
0.11	SE(M)	0.04
4.79	ST DEV	1.89
0.08	SE(SD)	0.03

....

SYMMETRY--BETA I = 0.20
KURTOSIS--BETA II = 3.03
COEFFICIENT OF VARIATION = 5.97

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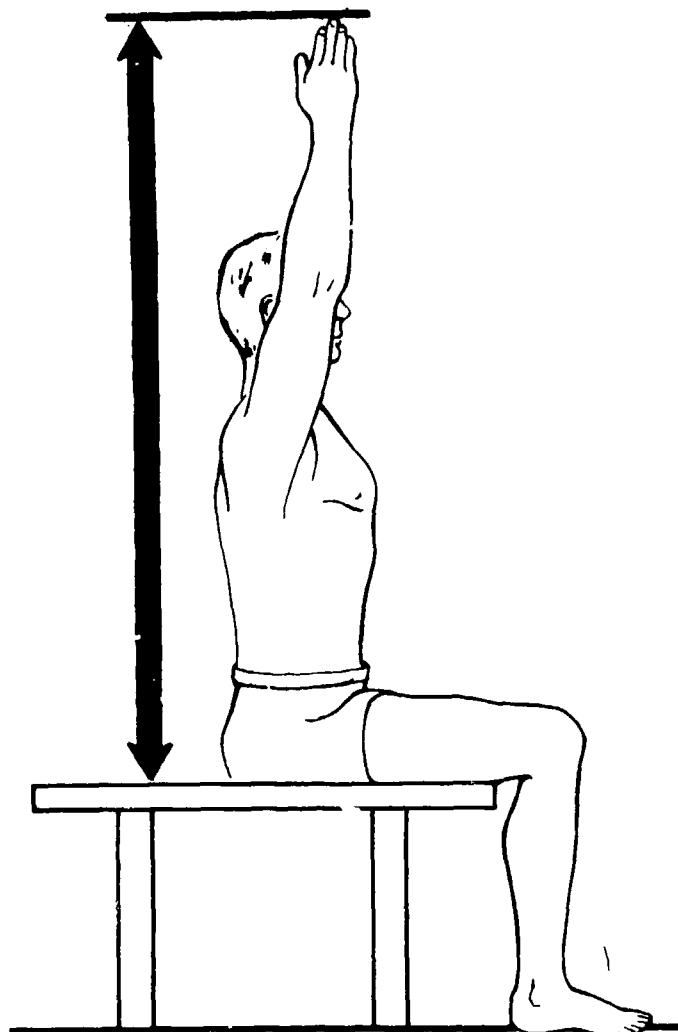
SAMPLE SIZE = 2008

10 Vertical Arm Reach, Sitting

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
154.75-	155.74	60.93-	61.31	6	2008	0.30	100.00
153.75-	154.74	60.53-	60.92	4	2002	0.20	99.70
152.75-	153.74	60.14-	60.52	2	1998	0.10	99.50
151.75-	152.74	59.74-	60.13	6	1996	0.30	99.40
150.75-	151.74	59.35-	59.73	6	1990	0.30	99.10
149.75-	150.74	58.96-	59.34	21	1984	1.05	98.80
148.75-	149.74	58.56-	58.95	15	1963	0.75	97.76
147.75-	148.74	58.17-	58.55	27	1948	1.34	97.01
146.75-	147.74	57.78-	58.16	27	1921	1.34	95.67
145.75-	146.74	57.38-	57.77	46	1894	2.29	94.32
144.75-	145.74	56.99-	57.37	66	1848	3.29	92.03
143.75-	144.74	56.59-	56.98	74	1782	3.69	88.75
142.75-	143.74	56.20-	56.58	84	1708	4.18	85.06
141.75-	142.74	55.81-	56.19	97	1624	4.83	80.88
140.75-	141.74	55.41-	55.80	114	1527	5.68	76.05
139.75-	140.74	55.02-	55.40	132	1413	6.57	70.37
138.75-	139.74	54.63-	55.01	133	1281	6.62	63.79
137.75-	138.74	54.23-	54.62	144	1148	7.17	57.17
136.75-	137.74	53.84-	54.22	135	1004	6.72	50.00
135.75-	136.74	53.44-	53.83	127	869	6.32	43.28
134.75-	135.74	53.05-	53.43	133	742	6.62	36.95
133.75-	134.74	52.66-	53.04	130	609	6.47	30.33
132.75-	133.74	52.26-	52.65	95	479	4.73	23.85
131.75-	132.74	51.87-	52.25	91	384	4.53	19.12
130.75-	131.74	51.48-	51.86	87	293	4.33	14.59
129.75-	130.74	51.08-	51.47	55	206	2.74	10.26
128.75-	129.74	50.69-	51.07	47	151	2.34	7.52
127.75-	128.74	50.30-	50.68	36	104	1.79	5.18
126.75-	127.74	49.90-	50.29	23	68	1.15	3.39
125.75-	126.74	49.51-	49.89	14	45	0.70	2.24
124.75-	125.74	49.11-	49.50	13	31	0.65	1.54
123.75-	124.74	48.72-	49.10	7	18	0.35	0.90
122.75-	123.74	48.33-	48.71	7	11	0.35	0.55
121.75-	122.74	47.93-	48.32	4	4	0.20	0.20

Vertical Arm Reach, Sitting

PERCENTILES



CENTIMETERS		INCHES
151.45	99 TH	59.63
149.82	98 TH	58.98
148.77	97 TH	58.57
147.35	95 TH	58.01
145.18	90 TH	57.16
143.71	85 TH	56.58
142.57	80 TH	56.13
141.58	75 TH	55.74
140.70	70 TH	55.39
139.90	65 TH	55.08
139.14	60 TH	54.78
138.41	55 TH	54.49
137.69	50 TH	54.21
136.97	45 TH	53.93
136.26	40 TH	53.64
135.52	35 TH	53.35
134.75	30 TH	53.05
133.91	25 TH	52.72
132.99	20 TH	52.36
131.92	15 TH	51.94
130.59	10 TH	51.41
128.62	5 TH	50.64
127.35	3 RD	50.14
126.42	2 ND	49.77
124.94	1 ST	49.19

THE SUMMARY STATISTICS

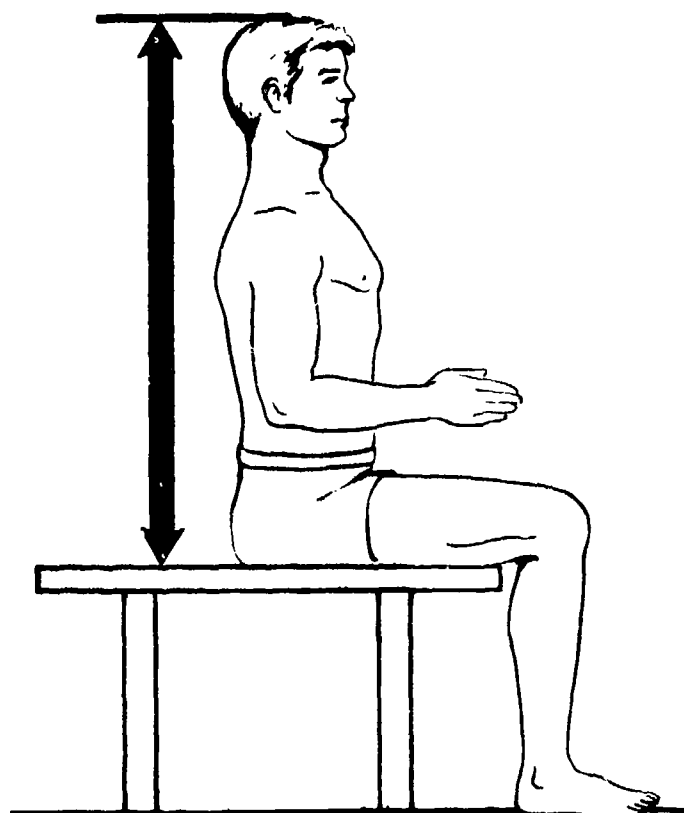
Vertical Arm Reach, Sitting: Subject sits erect, with his right arm and hand extended vertically above his shoulder. Arm reach is measured as the vertical distance from the sitting surface to the tip of the middle finger of the extended hand. An anthropometer is used.

CENTIMETERS		INCHES
137.77	MEAN	54.24
0.13	SE(M)	0.05
5.68	ST DEV	2.24
0.09	SE(SD)	0.04
....		
SYMMETRY--BETA I		= 0.11
KURTOSIS--BETA II		= 2.94
COEFFICIENT OF VARIATION		= 4.12
....		
SAMPLE SIZE		= 2008

11 Sitting Height

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
100.75-	101.24	39.67-	39.85	3	2008	0.15	100.00
100.25-	100.74	39.47-	39.66	4	2005	0.20	99.85
99.75-	100.24	39.27-	39.46	7	2001	0.35	99.65
99.25-	99.74	39.07-	39.26	8	1994	0.40	99.30
98.75-	99.24	38.88-	39.06	11	1986	0.55	98.90
98.25-	98.74	38.68-	38.87	14	1975	0.70	98.36
97.75-	98.24	38.48-	38.67	18	1961	0.90	97.66
97.25-	97.74	38.29-	38.47	18	1943	0.90	96.76
96.75-	97.24	38.09-	38.28	29	1925	1.44	95.87
96.25-	96.74	37.89-	38.08	27	1896	1.34	94.42
95.75-	96.24	37.70-	37.88	40	1869	1.99	93.08
95.25-	95.74	37.50-	37.69	53	1829	2.64	91.09
94.75-	95.24	37.30-	37.49	60	1776	2.99	88.45
94.25-	94.74	37.11-	37.29	70	1716	3.49	85.46
93.75-	94.24	36.91-	37.10	85	1646	4.23	81.97
93.25-	93.74	36.71-	36.90	83	1561	4.13	77.74
92.75-	93.24	36.52-	36.70	94	1478	4.68	73.61
92.25-	92.74	36.32-	36.51	101	1384	5.03	68.92
91.75-	92.24	36.12-	36.31	103	1283	5.13	63.89
91.25-	91.74	35.93-	36.11	100	1180	4.98	58.76
90.75-	91.24	35.73-	35.92	123	1080	6.13	53.78
90.25-	90.74	35.53-	35.72	105	957	5.23	47.66
89.75-	90.24	35.33-	35.52	131	852	6.52	42.43
89.25-	89.74	35.14-	35.32	94	721	4.68	35.91
88.75-	89.24	34.94-	35.13	112	627	5.58	31.23
88.25-	88.74	34.74-	34.93	85	515	4.23	25.65
87.75-	88.24	34.55-	34.73	71	430	3.54	21.41
87.25-	87.74	34.35-	34.54	57	359	2.84	17.88
86.75-	87.24	34.15-	34.34	63	302	3.14	15.04
86.25-	86.74	33.96-	34.14	57	239	2.84	11.90
85.75-	86.24	33.76-	33.95	36	182	1.79	9.06
85.25-	85.74	33.56-	33.75	36	146	1.79	7.27
84.75-	85.24	33.37-	33.55	29	110	1.44	5.48
84.25-	84.74	33.17-	33.36	31	81	1.54	4.03
83.75-	84.24	32.97-	33.16	18	50	0.90	2.49
83.25-	83.74	32.78-	32.96	10	32	0.50	1.59
82.75-	83.24	32.58-	32.77	7	22	0.35	1.10
82.25-	82.74	32.38-	32.57	2	15	0.10	0.75
81.75-	82.24	32.19-	32.37	7	13	0.35	0.65
81.25-	81.74	31.99-	32.18	2	6	0.10	0.30
80.75-	81.24	31.79-	31.98	2	4	0.10	0.20
80.25-	80.74	31.59-	31.78	2	2	0.10	0.10

11 Sitting Height



Sitting Height: Subject sits erect, with head level, and with his feet resting on a surface adjusted so that his knees are bent at right angles. Sitting height is measured as the vertical distance from the sitting surface to the top of the head (vertex). An anthropometer is used, with the anthropometer arm firmly touching the scalp to compress the hair.

PERCENTILES

CENTIMETERS		INCHES
99.45	99 TH	39.16
98.43	98 TH	38.75
97.79	97 TH	38.50
96.93	95 TH	38.16
95.61	90 TH	37.64
94.72	85 TH	37.29
94.02	80 TH	37.01
93.41	75 TH	36.78
92.87	70 TH	36.56
92.37	65 TH	36.36
91.89	60 TH	36.18
91.43	55 TH	36.00
90.98	50 TH	35.82
90.52	45 TH	35.64
90.07	40 TH	35.46
89.59	35 TH	35.27
89.10	30 TH	35.08
88.56	25 TH	34.87
87.97	20 TH	34.63
87.29	15 TH	34.36
86.44	10 TH	34.03
85.21	5 TH	33.55
84.45	3 RD	33.25
83.91	2 ND	33.03
83.10	1 ST	32.71

THE SUMMARY STATISTICS

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CENTIMETERS		INCHES
90.99	MEAN	35.82
0.08	SE(M)	0.03
3.53	ST DEV	1.39
0.06	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.04

KURTOSIS--BETA II = 2.84

COEFFICIENT OF VARIATION = 3.88

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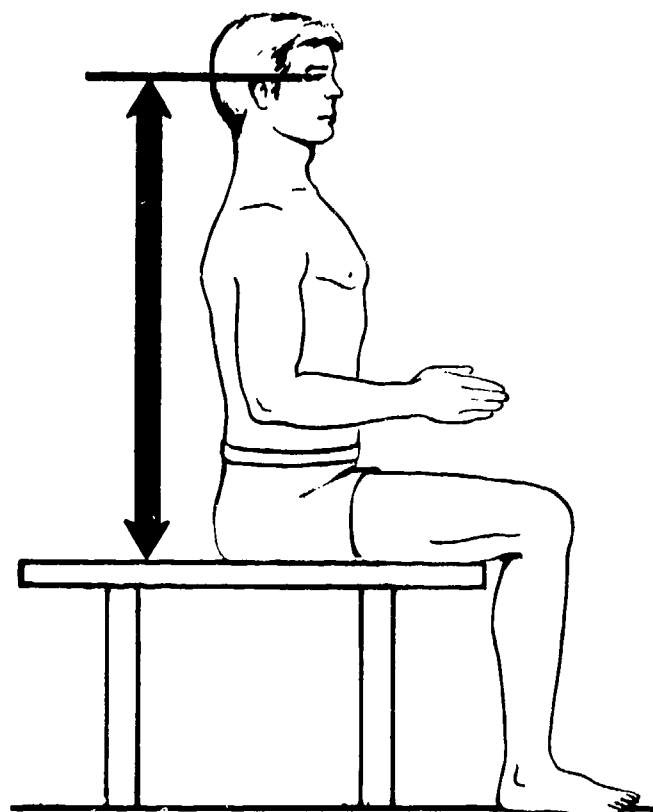
SAMPLE SIZE = 2008

12 Eye Height, Sitting

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
88.25-	88.74	34.74-	34.93	1	2008	0.05	100.00
87.75-	88.24	34.55-	34.73	1	2007	0.05	99.95
87.25-	87.74	34.35-	34.54	2	2006	0.10	99.90
86.75-	87.24	34.15-	34.34	5	2004	0.25	99.80
86.25-	86.74	33.96-	34.14	7	1999	0.35	99.55
85.75-	86.24	33.76-	33.95	9	1992	0.45	99.20
85.25-	85.74	33.56-	33.75	17	1983	0.85	98.75
84.75-	85.24	33.37-	33.55	19	1966	0.95	97.91
84.25-	84.74	33.17-	33.36	25	1947	1.25	96.96
83.75-	84.24	32.97-	33.16	32	1922	1.59	95.72
83.25-	83.74	32.78-	32.96	40	1890	1.99	94.12
82.75-	83.24	32.58-	32.77	57	1850	2.84	92.13
82.25-	82.74	32.38-	32.57	77	1793	3.83	89.29
81.75-	82.24	32.19-	32.37	70	1716	3.49	85.46
81.25-	81.74	31.99-	32.18	91	1646	4.53	81.97
80.75-	81.24	31.79-	31.98	98	1555	4.88	77.44
80.25-	80.74	31.59-	31.78	100	1457	4.98	72.56
79.75-	80.24	31.40-	31.58	127	1357	6.32	67.58
79.25-	79.74	31.20-	31.39	101	1230	5.03	61.25
78.75-	79.24	31.00-	31.19	126	1129	6.27	56.23
78.25-	78.74	30.81-	30.99	99	1003	4.93	49.95
77.75-	78.24	30.61-	30.80	119	904	5.93	45.02
77.25-	77.74	30.41-	30.60	126	785	6.27	39.09
76.75-	77.24	30.22-	30.40	92	659	4.58	32.82
76.25-	76.74	30.02-	30.21	94	567	4.68	28.24
75.75-	76.24	29.82-	30.01	88	473	4.38	23.56
75.25-	75.74	29.63-	29.81	73	385	3.64	19.17
74.75-	75.24	29.43-	29.62	58	312	2.89	15.54
74.25-	74.74	29.23-	29.42	48	254	2.39	12.65
73.75-	74.24	29.04-	29.22	48	206	2.39	10.26
73.25-	73.74	28.84-	29.03	34	158	1.69	7.87
72.75-	73.24	28.64-	28.83	31	124	1.54	6.18
72.25-	72.74	28.45-	28.63	25	93	1.25	4.63
71.75-	72.24	28.25-	28.44	22	68	1.10	3.39
71.25-	71.74	28.05-	28.24	17	46	0.85	2.29
70.75-	71.24	27.85-	28.04	9	29	0.45	1.44
70.25-	70.74	27.66-	27.84	10	20	0.50	1.00
69.75-	70.24	27.46-	27.65	3	10	0.15	0.50
69.25-	69.74	27.26-	27.45	2	7	0.10	0.35
68.75-	69.24	27.07-	27.25	2	5	0.10	0.25
68.25-	68.74	26.87-	27.06	2	3	0.10	0.15
67.75-	68.24	26.67-	26.86	1	1	0.05	0.05

12 Eye Height, Sitting

PERCENTILES



CENTIMETERS		INCHES
86.07	99 TH	33.89
85.25	98 TH	33.56
84.73	97 TH	33.36
84.03	95 TH	33.08
82.92	90 TH	32.64
82.15	85 TH	32.34
81.54	80 TH	32.10
81.00	75 TH	31.89
80.51	70 TH	31.70
80.05	65 TH	31.52
79.61	60 TH	31.34
79.18	55 TH	31.17
78.75	50 TH	31.00
78.31	45 TH	30.83
77.87	40 TH	30.66
77.41	35 TH	30.47
76.91	30 TH	30.28
76.38	25 TH	30.07
75.78	20 TH	29.83
75.09	15 TH	29.56
74.21	10 TH	29.22
72.94	5 TH	28.72
72.14	3 RD	28.40
71.57	2 ND	28.18
70.71	1 ST	27.84

Eye Height, Sitting: Subject sits erect, with head level, and with his feet resting on a surface adjusted so that his knees are bent at right angles. Eye height is measured as the vertical distance from the sitting surface to the inner corner (internal canthus) of the right eye. An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
78.64	MEAN	30.96
0.07	SE(M)	0.03
3.34	ST DEV	1.31
0.05	SE(SD)	0.02

....

SYMMETRY--BETA I = -0.12
KURTOSIS--BETA II = 2.81
COEFFICIENT OF VARIATION = 4.25

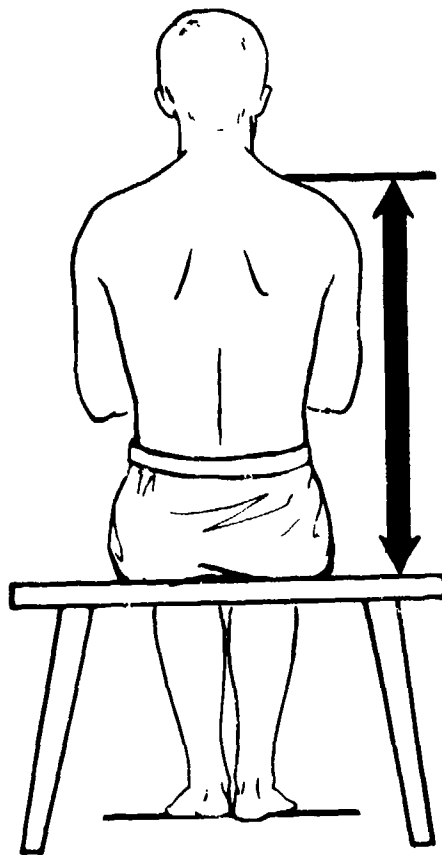
....

SAMPLE SIZE = 2008

13 Mid-Shoulder Height, Sitting

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
71.25-	71.64	28.05-	28.20	2	2008	0.10	100.00
70.85-	71.24	27.89-	28.04	2	2006	0.10	99.90
70.45-	70.84	27.74-	27.88	1	2004	0.05	99.80
70.05-	70.44	27.58-	27.73	2	2003	0.10	99.75
64.85-	65.24	25.53-	25.68	69	1610	3.44	80.18
64.45-	64.84	25.37-	25.52	83	1541	4.13	76.74
64.05-	64.44	25.22-	25.36	66	1458	3.29	72.61
63.65-	64.04	25.06-	25.21	74	1392	3.69	69.32
63.25-	63.64	24.90-	25.05	97	1318	4.83	65.64
62.85-	63.24	24.74-	24.89	102	1221	5.08	60.81
62.45-	62.84	24.59-	24.73	90	1119	4.48	55.73
62.05-	62.44	24.43-	24.58	106	1029	5.28	51.25
61.65-	62.04	24.27-	24.42	98	923	4.88	45.97
61.25-	61.64	24.11-	24.26	78	825	3.88	41.09
60.85-	61.24	23.96-	24.10	111	747	5.53	37.20
60.45-	60.84	23.80-	23.95	80	636	3.98	31.67
60.05-	60.44	23.64-	23.79	85	556	4.23	27.69
59.65-	60.04	23.48-	23.63	79	471	3.93	23.46
59.25-	59.64	23.33-	23.47	71	392	3.54	19.52
58.85-	59.24	23.17-	23.32	69	321	3.44	15.99
58.45-	58.84	23.01-	23.16	41	252	2.04	12.55
58.05-	58.44	22.85-	23.00	37	211	1.84	10.51
57.65-	58.04	22.70-	22.84	33	174	1.64	8.67
57.25-	57.64	22.54-	22.69	33	141	1.64	7.02
56.85-	57.24	22.38-	22.53	31	108	1.54	5.38
56.45-	56.84	22.22-	22.37	13	77	0.65	3.83
56.05-	56.44	22.07-	22.21	16	64	0.80	3.19
55.65-	56.04	21.91-	22.06	13	48	0.65	2.39
55.25-	55.64	21.75-	21.90	11	35	0.55	1.74
54.85-	55.24	21.59-	21.74	5	24	0.25	1.20
54.45-	54.84	21.44-	21.58	7	19	0.35	0.95
54.05-	54.44	21.28-	21.43	4	12	0.20	0.60
53.65-	54.04	21.12-	21.27	1	8	0.05	0.40
53.25-	53.64	20.96-	21.11	3	7	0.15	0.35
52.85-	53.24	20.81-	20.95	1	4	0.05	0.20
52.45-	52.84	20.65-	20.80	1	3	0.05	0.15
52.05-	52.44	20.49-	20.64	1	2	0.05	0.10
51.65-	52.04	20.33-	20.48	1	1	0.05	0.05

13 Mid-Shoulder Height, Sitting



Mid-Shoulder Height, Sitting: Subject sits erect, with head level, and with his hands resting on his thighs. Mid-shoulder height is measured as the vertical distance from the sitting surface to the top of the right shoulder, midway between the neck and the outer point (acromion) of the shoulder. An anthropometer is used.

PERCENTILES

CENTIMETERS		INCHES
69.47	99 TH	27.35
68.83	98 TH	27.10
68.38	97 TH	26.92
67.71	95 TH	26.66
66.59	90 TH	26.22
65.80	85 TH	25.91
65.16	80 TH	25.66
64.61	75 TH	25.44
64.11	70 TH	25.24
63.65	65 TH	25.06
63.21	60 TH	24.89
62.79	55 TH	24.72
62.37	50 TH	24.56
61.96	45 TH	24.39
61.55	40 TH	24.23
61.13	35 TH	24.07
60.68	30 TH	23.89
60.21	25 TH	23.70
59.68	20 TH	23.50
59.07	15 TH	23.26
58.31	10 TH	22.96
57.17	5 TH	22.51
56.41	3 SD	22.21
55.84	2 ND	21.98
54.90	1 ST	21.61

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
62.38	MEAN	24.56
0.07	SE(M)	0.03
3.19	ST DEV	1.25
0.05	SE(SD)	0.02

....

SYMMETRY--BETA I = -0.04
 KURTOSIS--BETA II = 2.79
 COEFFICIENT OF VARIATION = 5.11

....

SAMPLE SIZE = 2008

14 Shoulder-Elbow Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
43.15-	43.44	16.99-	17.10	1	2008	0.05	100.00
42.85-	43.14	16.87-	16.98	1	2007	0.05	99.95
42.55-	42.84	16.75-	16.86	2	2006	0.10	99.90
42.25-	42.54	16.63-	16.74	3	2004	0.15	99.80
41.95-	42.24	16.52-	16.62	3	2001	0.15	99.65
41.65-	41.94	16.40-	16.51	3	1998	0.15	99.50
41.35-	41.64	16.28-	16.39	13	1995	0.65	99.35
41.05-	41.34	16.16-	16.27	13	1982	0.65	98.71
40.75-	41.04	16.04-	16.15	8	1969	0.40	98.06
40.45-	40.74	15.93-	16.03	19	1961	0.95	97.66
40.15-	40.44	15.81-	15.92	32	1942	1.59	96.71
39.85-	40.14	15.69-	15.80	33	1910	1.64	95.12
39.55-	39.84	15.57-	15.68	49	1877	2.44	93.48
39.25-	39.54	15.45-	15.56	78	1828	3.88	91.04
38.95-	39.24	15.33-	15.44	76	1750	3.78	87.15
38.65-	38.94	15.22-	15.32	85	1674	4.23	83.37
38.35-	38.64	15.10-	15.21	109	1589	5.43	79.13
38.05-	38.34	14.98-	15.09	102	1480	5.08	73.71
37.75-	38.04	14.86-	14.97	113	1378	5.63	68.63
37.45-	37.74	14.74-	14.85	113	1265	5.63	63.00
37.15-	37.44	14.63-	14.73	128	1152	6.37	57.37
36.85-	37.14	14.51-	14.62	113	1024	5.63	51.00
36.55-	36.84	14.39-	14.50	129	911	6.42	45.37
36.25-	36.54	14.27-	14.38	121	782	6.03	38.94
35.95-	36.24	14.15-	14.26	116	661	5.78	32.92
35.65-	35.94	14.04-	14.14	104	545	5.18	27.14
35.35-	35.64	13.92-	14.03	91	441	4.53	21.96
35.05-	35.34	13.80-	13.91	82	350	4.08	17.43
34.75-	35.04	13.68-	13.79	62	268	3.09	13.35
34.45-	34.74	13.56-	13.67	57	206	2.84	10.26
34.15-	34.44	13.45-	13.55	47	149	2.34	7.42
33.85-	34.14	13.33-	13.44	30	102	1.49	5.08
33.55-	33.84	13.21-	13.32	25	72	1.25	3.59
33.25-	33.54	13.09-	13.20	17	47	0.85	2.34
32.95-	33.24	12.97-	13.08	12	30	0.60	1.49
32.65-	32.94	12.85-	12.96	8	18	0.40	0.90
32.35-	32.64	12.74-	12.84	4	10	0.20	0.50
32.05-	32.34	12.62-	12.73	1	6	0.05	0.30
31.75-	32.04	12.50-	12.61	5	5	0.25	0.25

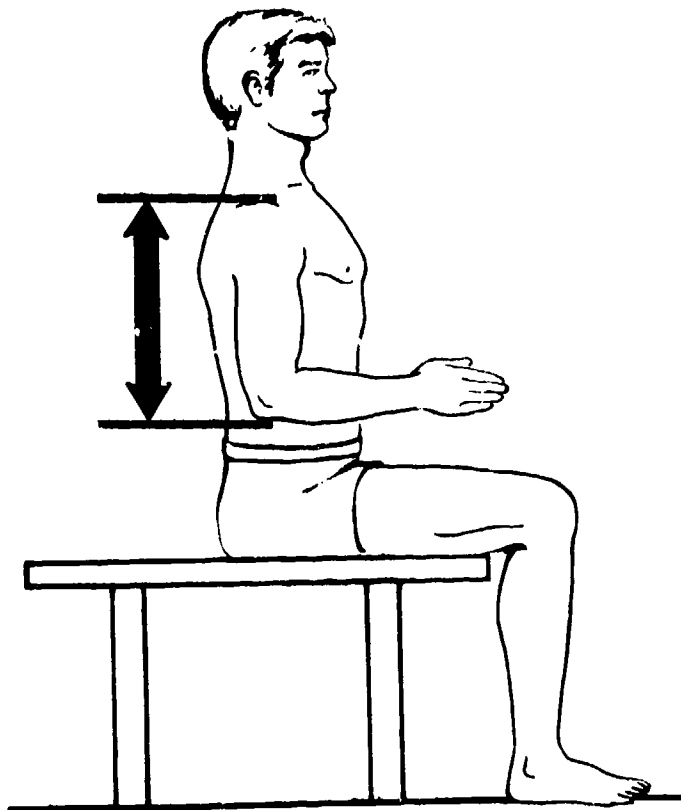
14 Shoulder-Elbow Length

PERCENTILES

CENTIMETERS

INCHES

41.47	99 TH	16.33
40.95	98 TH	16.12
40.62	97 TH	15.99
40.18	95 TH	15.82
39.50	90 TH	15.55
39.05	85 TH	15.37
38.69	80 TH	15.23
38.37	75 TH	15.11
38.09	70 TH	15.00
37.83	65 TH	14.89
37.58	60 TH	14.80
37.34	55 TH	14.70
37.11	50 TH	14.61
36.87	45 TH	14.51
36.63	40 TH	14.42
36.38	35 TH	14.32
36.12	30 TH	14.22
35.84	25 TH	14.11
35.52	20 TH	13.99
35.17	15 TH	13.84
34.72	10 TH	13.67
34.09	5 TH	13.42
33.70	3 RD	13.27
33.43	2 ND	13.16
33.03	1 ST	13.00



Shoulder-Elbow Length: Subject sits erect, with his arms bent to form right angles at the elbows. Shoulder-elbow length is measured as the vertical distance from the outer point (acromion) of the right shoulder to the bottom of the right elbow. An anthropometer is used.

THE SUMMARY STATISTICS

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CENTIMETERS

INCHES

37.12	MEAN	14.61
0.04	SE(M)	0.02
1.84	ST DEV	0.73
0.03	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.06

KURTOSIS--BETA II = 2.82

COEFFICIENT OF VARIATION = 4.96

....

SAMPLE SIZE = 2008

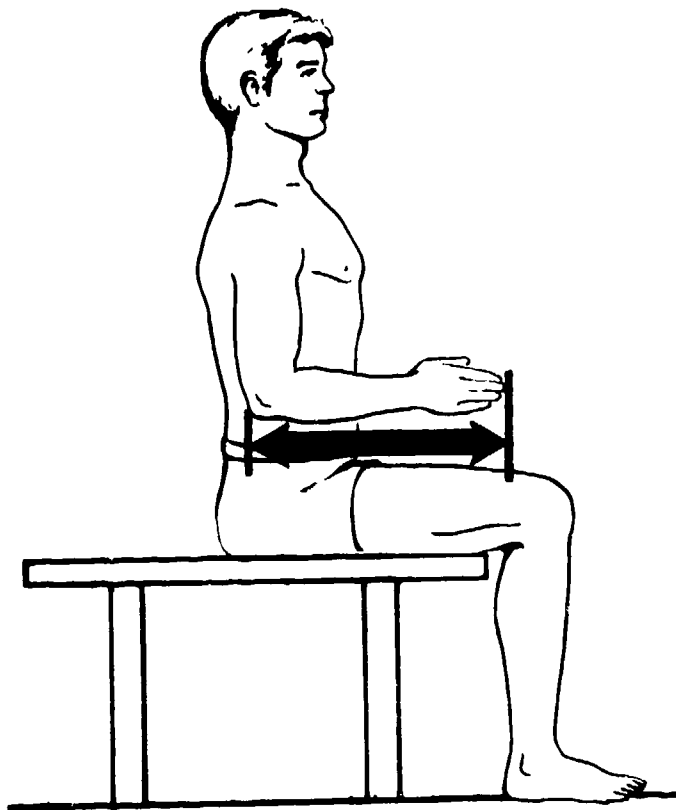
15 Elbow-Fingertip Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
55.45-	55.84	21.83-	21.98	1	2008	0.05	100.00
55.05-	55.44	21.67-	21.82	1	2007	0.05	99.95
54.65-	55.04	21.52-	21.66	4	2006	0.20	99.90
54.25-	54.64	21.36-	21.51	0	2002	0.00	99.70
53.85-	54.24	21.20-	21.35	3	2002	0.15	99.70
53.45-	53.84	21.04-	21.19	5	1999	0.25	99.55
53.05-	53.44	20.89-	21.03	21	1994	1.05	99.30
52.65-	53.04	20.73-	20.88	13	1973	0.65	98.26
52.25-	52.64	20.57-	20.72	13	1960	0.65	97.61
51.85-	52.24	20.41-	20.56	23	1947	1.15	96.96
51.45-	51.84	20.26-	20.40	44	1924	2.19	95.82
51.05-	51.44	20.10-	20.25	36	1880	1.79	93.63
50.65-	51.04	19.94-	20.09	47	1844	2.34	91.83
50.25-	50.64	19.78-	19.93	77	1797	3.83	89.49
49.85-	50.24	19.63-	19.77	70	1720	3.49	85.66
49.45-	49.84	19.47-	19.62	74	1650	3.69	82.17
49.05-	49.44	19.31-	19.46	119	1576	5.93	78.49
48.65-	49.04	19.15-	19.30	120	1457	5.98	72.56
48.25-	48.64	19.00-	19.14	123	1337	6.13	66.58
47.85-	48.24	18.84-	18.99	153	1214	7.62	60.46
47.45-	47.84	18.68-	18.83	164	1061	8.17	52.84
47.05-	47.44	18.52-	18.67	151	897	7.52	44.67
46.65-	47.04	18.37-	18.51	134	746	6.67	37.15
46.25-	46.64	18.21-	18.36	130	612	6.47	30.48
45.85-	46.24	18.05-	18.20	104	482	5.18	24.00
45.45-	45.84	17.89-	18.04	102	378	5.08	18.82
45.05-	45.44	17.74-	17.88	74	276	3.69	13.75
44.65-	45.04	17.58-	17.73	72	202	3.59	10.06
44.25-	44.64	17.42-	17.57	38	130	1.89	6.47
43.85-	44.24	17.26-	17.41	31	92	1.54	4.58
43.45-	43.84	17.11-	17.25	24	61	1.20	3.04
43.05-	43.44	16.95-	17.10	14	37	0.70	1.84
42.65-	43.04	16.79-	16.94	13	23	0.65	1.15
42.25-	42.64	16.63-	16.78	4	10	0.20	0.50
41.85-	42.24	16.48-	16.62	2	6	0.10	0.30
41.45-	41.84	16.32-	16.47	2	4	0.10	0.20
41.05-	41.44	16.16-	16.31	0	2	0.00	0.10
40.65-	41.04	16.00-	16.15	1	2	0.05	0.10
40.25-	40.64	15.85-	15.99	0	1	0.00	0.05
39.85-	40.24	15.69-	15.84	1	1	0.05	0.05

15 Elbow-Fingertip Length

PERCENTILES

CENTIMETERS		INCHES
53.43	99 TH	21.03
52.74	98 TH	20.76
52.29	97 TH	20.59
51.69	95 TH	20.35
50.76	90 TH	19.98
50.14	85 TH	19.74
49.66	80 TH	19.55
49.25	75 TH	19.39
48.90	70 TH	19.25
48.57	65 TH	19.12
48.27	60 TH	19.00
47.98	55 TH	18.89
47.70	50 TH	18.78
47.43	45 TH	18.67
47.16	40 TH	18.57
46.88	35 TH	18.46
46.59	30 TH	18.34
46.28	25 TH	18.22
45.94	20 TH	18.09
45.56	15 TH	17.94
45.07	10 TH	17.75
44.35	5 TH	17.46
43.87	3 RD	17.27
43.51	2 ND	17.13
42.92	1 ST	16.90



Elbow-Fingertip Length (Forearm-Hand Length): Subject sits erect, with his arms bent to form right angles at the elbows and with his hands extended. Elbow-fingertip length is measured as the horizontal distance from the back of the right elbow to the tip of the middle finger of the extended right hand. An anthropometer is used.

THE SUMMARY STATISTICS

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CENTIMETERS		INCHES
47.82	MEAN	18.83
0.05	SE(M)	0.02
2.22	ST DEV	0.87
0.04	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.22
KURTOSIS--BETA II = 3.09
COEFFICIENT OF VARIATION = 4.64

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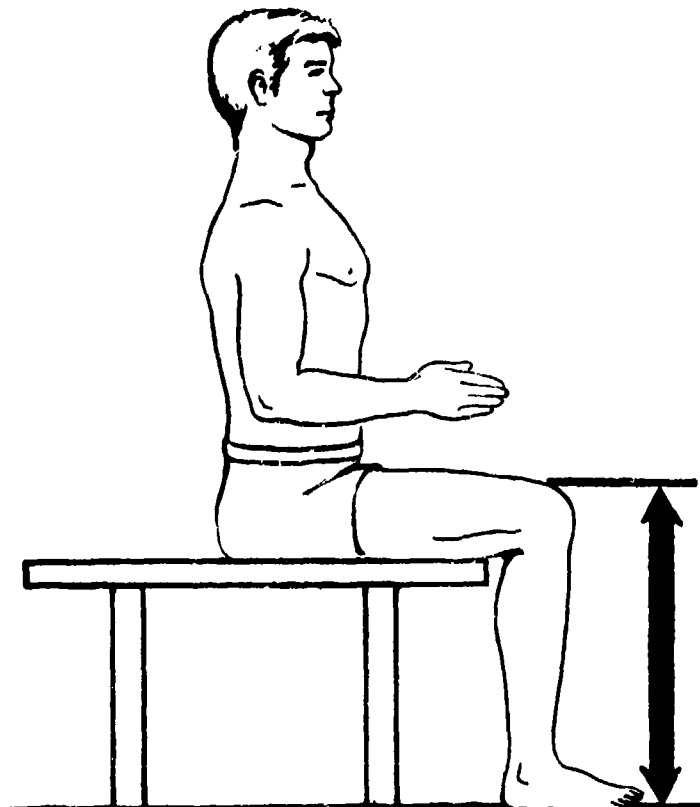
SAMPLE SIZE = 2008

16 Knee Height, Sitting

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
63.35-	63.74	24.94-	25.09	1	2008	0.05	100.00
62.95-	63.34	24.78-	24.93	0	2007	0.00	99.95
62.55-	62.94	24.63-	24.77	0	2007	0.00	99.95
62.15-	62.54	24.47-	24.62	1	2007	0.05	99.95
61.75-	62.14	24.31-	24.46	2	2006	0.10	99.90
61.35-	61.74	24.15-	24.30	1	2004	0.05	99.80
60.95-	61.34	24.00-	24.14	3	2003	0.15	99.75
60.55-	60.94	23.84-	23.99	3	2000	0.15	99.60
60.15-	60.54	23.68-	23.83	8	1997	0.40	99.45
59.75-	60.14	23.52-	23.67	14	1989	0.70	99.05
59.35-	59.74	23.37-	23.51	28	1975	1.39	98.36
58.95-	59.34	23.21-	23.36	20	1947	1.00	96.96
58.55-	58.94	23.05-	23.20	34	1927	1.69	95.97
58.15-	58.54	22.89-	23.04	33	1893	1.64	94.27
57.75-	58.14	22.74-	22.88	37	1860	1.84	92.63
57.35-	57.74	22.58-	22.73	53	1823	2.64	90.79
56.95-	57.34	22.42-	22.57	72	1770	3.59	88.15
56.55-	56.94	22.26-	22.41	59	1698	2.94	84.56
56.15-	56.54	22.11-	22.25	89	1639	4.43	81.62
55.75-	56.14	21.95-	22.10	114	1550	5.68	77.19
55.35-	55.74	21.79-	21.94	93	1436	4.63	71.51
54.95-	55.34	21.63-	21.78	80	1343	3.98	66.88
54.55-	54.94	21.48-	21.62	152	1263	7.57	62.90
54.15-	54.54	21.32-	21.47	122	1111	6.08	55.33
53.75-	54.14	21.16-	21.31	142	989	7.07	49.25
53.35-	53.74	21.00-	21.15	122	847	6.08	42.18
52.95-	53.34	20.85-	20.99	70	725	3.49	36.11
52.55-	52.94	20.69-	20.84	96	655	4.78	32.62
52.15-	52.54	20.53-	20.68	117	559	5.83	27.84
51.75-	52.14	20.37-	20.52	91	442	4.53	22.01
51.35-	51.74	20.22-	20.36	62	351	3.09	17.48
50.95-	51.34	20.06-	20.21	59	289	2.94	14.39
50.55-	50.94	19.90-	20.05	54	230	2.69	11.45
50.15-	50.54	19.74-	19.89	60	176	2.99	8.76
49.75-	50.14	19.59-	19.73	39	116	1.94	5.78
49.35-	49.74	19.43-	19.58	24	77	1.20	3.83
48.95-	49.34	19.27-	19.42	10	53	0.50	2.64
48.55-	48.94	19.11-	19.26	21	43	1.05	2.14
48.15-	48.54	18.96-	19.10	13	22	0.65	1.10
47.75-	48.14	18.80-	18.95	3	9	0.15	0.45
47.35-	47.74	18.64-	18.79	1	6	0.05	0.30
46.95-	47.34	18.48-	18.63	1	5	0.05	0.25
46.55-	46.94	18.33-	18.47	2	4	0.10	0.20
46.15-	46.54	18.17-	18.32	0	2	0.00	0.10
45.75-	46.14	18.01-	18.16	2	2	0.10	0.10

PERCENTILES

CENTIMETERS		INCHES
60.22	99 TH	23.71
59.62	98 TH	23.47
59.22	97 TH	23.31
58.64	95 TH	23.09
57.69	90 TH	22.71
57.03	85 TH	22.45
56.50	80 TH	22.24
56.03	75 TH	22.06
55.62	70 TH	21.90
55.23	65 TH	21.75
54.87	60 TH	21.60
54.52	55 TH	21.46
54.17	50 TH	21.33
53.83	45 TH	21.19
53.49	40 TH	21.06
53.13	35 TH	20.92
52.76	30 TH	20.77
52.37	25 TH	20.62
51.94	20 TH	20.45
51.45	15 TH	20.25
50.84	10 TH	20.01
49.97	5 TH	19.67
49.42	3 RD	19.46
49.03	2 ND	19.30
48.42	1 ST	19.06



Knee Height, Sitting: Subject sits erect, with his feet resting on a surface adjusted so that his knees are bent at right angles. Knee height is measured as the vertical distance from the footrest surface to the top of the right knee. An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
54.23	MEAN	21.35
0.06	SE(M)	0.02
2.63	ST DEV	1.03
0.04	SE(SD)	0.02

....

SYMMETRY--BETA I		= 0.07
KURTOSIS--BETA II		= 2.82
COEFFICIENT OF VARIATION		= 4.84

....

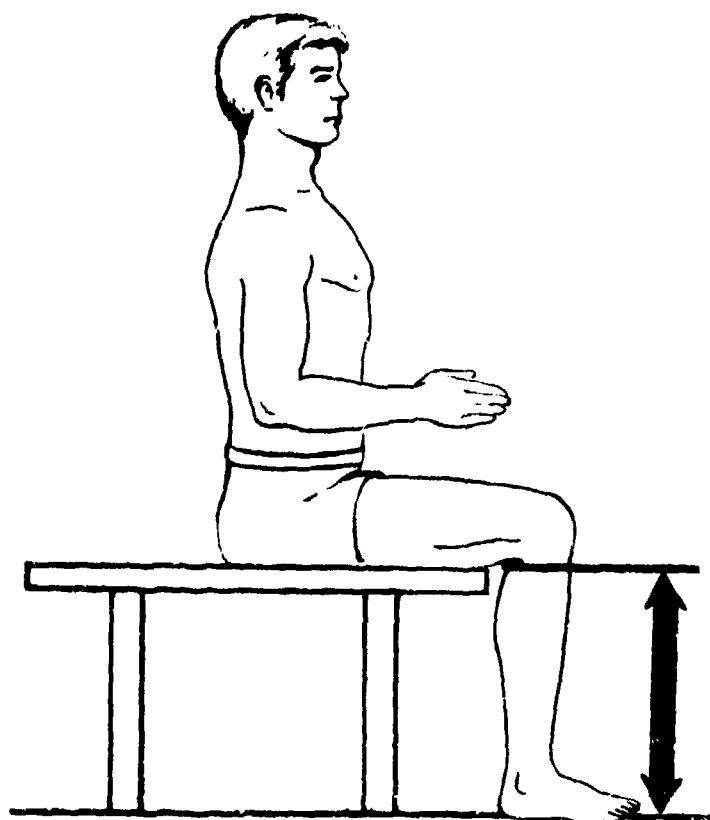
SAMPLE SIZE = 2008

17 Popliteal Height, Sitting

--INTERVALS--				--FREQUENCIES--		
CENTIMETERS		INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
52.85-	53.24	20.81- 20.95	2	2008	0.10	100.00
52.45-	52.84	20.65- 20.80	3	2006	0.15	99.90
52.05-	52.44	20.49- 20.64	5	2003	0.25	99.75
51.65-	52.04	20.33- 20.48	5	1998	0.25	99.50
51.25-	51.64	20.18- 20.32	8	1993	0.40	99.25
50.85-	51.24	20.02- 20.17	24	1985	1.20	98.85
50.45-	50.84	19.86- 20.01	22	1961	1.10	97.66
50.05-	50.44	19.70- 19.85	19	1939	0.95	96.56
49.65-	50.04	19.55- 19.69	49	1920	2.44	95.62
49.25-	49.64	19.39- 19.54	47	1871	2.34	93.18
48.85-	49.24	19.23- 19.38	69	1824	3.44	90.84
48.45-	48.84	19.07- 19.22	42	1755	2.09	87.40
48.05-	48.44	18.92- 19.06	62	1713	3.09	85.31
47.65-	48.04	18.76- 18.91	62	1651	3.09	82.22
47.25-	47.64	18.60- 18.75	93	1589	4.63	79.13
46.85-	47.24	18.45- 18.59	98	1496	4.88	74.50
46.45-	46.84	18.29- 18.44	105	1398	5.23	69.62
46.05-	46.44	18.13- 18.28	129	1293	6.42	64.39
45.65-	46.04	17.97- 18.12	125	1164	6.23	57.97
45.25-	45.64	17.82- 17.96	146	1039	7.27	51.74
44.85-	45.24	17.66- 17.81	165	893	8.22	44.47
44.45-	44.84	17.50- 17.65	129	728	6.42	36.25
44.05-	44.44	17.34- 17.49	126	599	6.27	29.83
43.65-	44.04	17.19- 17.33	103	473	5.13	23.56
43.25-	43.64	17.03- 17.18	90	370	4.48	18.43
42.85-	43.24	16.87- 17.02	62	280	3.09	13.94
42.45-	42.84	16.71- 16.86	57	218	2.84	10.86
42.05-	42.44	16.56- 16.70	57	161	2.84	8.02
41.65-	42.04	16.40- 16.55	37	104	1.84	5.18
41.25-	41.64	16.24- 16.39	17	67	0.85	3.34
40.85-	41.24	16.08- 16.23	17	50	0.85	2.49
40.45-	40.84	15.93- 16.07	11	33	0.55	1.64
40.05-	40.44	15.77- 15.92	10	22	0.50	1.10
39.65-	40.04	15.61- 15.76	8	12	0.40	0.60
39.25-	39.64	15.45- 15.60	2	4	0.10	0.20
38.85-	39.24	15.30- 15.44	1	2	0.05	0.10
38.45-	38.84	15.14- 15.29	0	1	0.00	0.05
38.05-	38.44	14.98- 15.13	0	1	0.00	0.05
37.65-	38.04	14.82- 14.97	0	1	0.00	0.05
37.25-	37.64	14.67- 14.81	1	1	0.05	0.05

17 Popliteal Height, Sitting

PERCENTILES



CENTIMETERS		INCHES
51.44	99 TH	20.25
50.95	98 TH	20.06
50.57	97 TH	19.91
50.00	95 TH	19.68
49.03	90 TH	19.30
48.35	85 TH	19.03
47.81	80 TH	18.82
47.34	75 TH	18.64
46.94	70 TH	18.48
46.57	65 TH	18.33
46.23	60 TH	18.20
45.90	55 TH	18.07
45.59	50 TH	17.95
45.29	45 TH	17.83
44.99	40 TH	17.71
44.69	35 TH	17.60
44.39	30 TH	17.48
44.07	25 TH	17.35
43.72	20 TH	17.21
43.32	15 TH	17.06
42.82	10 TH	16.86
42.05	5 TH	16.56
41.51	3 RD	16.34
41.08	2 ND	16.17
40.30	1 ST	15.87

Popliteal Height, Sitting: Subject sits erect, with his feet resting on a surface adjusted so that his knees are bent at right angles. Popliteal height is measured as the vertical distance from the footrest surface to the underside of the right knee (popliteal area). An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
45.74	MEAN	18.01
0.05	SE(M)	0.02
2.40	ST DEV	0.95
0.04	SE(SD)	0.01

....

SYMMETRY--BETA I	=	0.19
KURTOSIS--BETA II	=	2.88
COEFFICIENT OF VARIATION	=	5.25

....

SAMPLE SIZE = 2008

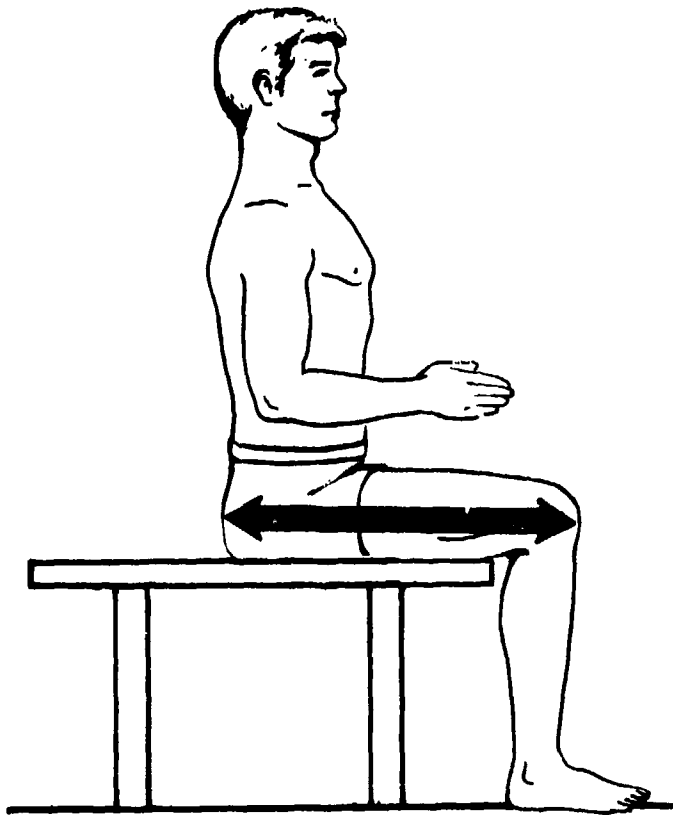
18 Buttock-Knee Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
68.05-	68.44	26.79-	26.94	2	2008	0.10	100.00
67.65-	68.04	26.63-	26.78	4	2006	0.20	99.90
67.25-	67.64	26.48-	26.62	0	2002	0.00	99.70
66.85-	67.24	26.32-	26.47	2	2002	0.10	99.70
66.45-	66.84	26.16-	26.31	3	2000	0.15	99.60
66.05-	66.44	26.00-	26.15	3	1997	0.15	99.45
65.65-	66.04	25.85-	25.99	16	1994	0.80	99.30
65.25-	65.64	25.69-	25.84	14	1978	0.70	98.51
64.85-	65.24	25.53-	25.68	22	1964	1.10	97.81
64.45-	64.84	25.37-	25.52	22	1942	1.10	96.71
64.05-	64.44	25.22-	25.36	27	1920	1.34	95.62
63.65-	64.04	25.06-	25.21	38	1893	1.89	94.27
63.25-	63.64	24.90-	25.05	36	1855	1.79	92.38
62.85-	63.24	24.74-	24.89	53	1819	2.64	90.59
62.45-	62.84	24.59-	24.73	63	1766	3.14	87.95
62.05-	62.44	24.43-	24.58	60	1703	2.99	84.81
61.65-	62.04	24.27-	24.42	68	1643	3.39	81.82
61.25-	61.64	24.11-	24.26	64	1575	3.19	78.44
60.85-	61.24	23.96-	24.10	87	1511	4.33	75.25
60.45-	60.84	23.80-	23.95	111	1424	5.53	70.92
60.05-	60.44	23.64-	23.79	106	1313	5.28	65.39
59.65-	60.04	23.48-	23.63	131	1207	6.52	60.11
59.25-	59.64	23.33-	23.47	132	1076	6.57	53.59
58.85-	59.24	23.17-	23.32	117	944	5.83	47.01
58.45-	58.84	23.01-	23.16	101	827	5.03	41.19
58.05-	58.44	22.85-	23.00	118	726	5.88	36.16
57.65-	58.04	22.70-	22.84	94	608	4.68	30.28
57.25-	57.64	22.54-	22.69	104	514	5.18	25.60
56.85-	57.24	22.38-	22.53	80	410	3.98	20.42
56.45-	56.84	22.22-	22.37	72	330	3.59	16.43
56.05-	56.44	22.07-	22.21	67	258	3.34	12.85
55.65-	56.04	21.91-	22.06	43	191	2.14	9.51
55.25-	55.64	21.75-	21.90	43	148	2.14	7.37
54.85-	55.24	21.59-	21.74	33	105	1.64	5.23
54.45-	54.84	21.44-	21.58	19	72	0.95	3.59
54.05-	54.44	21.28-	21.43	22	53	1.10	2.64
53.65-	54.04	21.12-	21.27	9	31	0.45	1.54
53.25-	53.64	20.96-	21.11	9	22	0.45	1.10
52.85-	53.24	20.81-	20.95	6	13	0.30	0.65
52.45-	52.84	20.65-	20.80	3	7	0.15	0.35
52.05-	52.44	20.49-	20.64	2	4	0.10	0.20
51.65-	52.04	20.33-	20.48	2	2	0.10	0.10

18 Buttock-Knee Length

PERCENTILES

CENTIMETERS		INCHES
65.97	99 TH	25.97
65.33	98 TH	25.72
64.88	97 TH	25.54
64.23	95 TH	25.29
63.16	90 TH	24.87
62.42	85 TH	24.58
61.84	80 TH	24.35
61.33	75 TH	24.15
60.89	70 TH	23.97
60.48	65 TH	23.81
60.10	60 TH	23.66
59.74	55 TH	23.52
59.38	50 TH	23.38
59.04	45 TH	23.24
58.69	40 TH	23.11
58.34	35 TH	22.97
57.98	30 TH	22.83
57.60	25 TH	22.68
57.18	20 TH	22.51
56.70	15 TH	22.32
56.11	10 TH	22.09
55.24	5 TH	21.75
54.67	3 RD	21.52
54.23	2 ND	21.35
53.50	1 ST	21.06



Buttock-Knee Length: Subject sits erect, with his feet resting on a surface adjusted so that his knees are bent at right angles. Buttock-knee length is measured as the horizontal distance from the back of the right buttock to the front of the right knee. An anthropometer is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
59.51	MEAN	23.43
0.06	SE(M)	0.02
2.72	ST DEV	1.07
0.04	SE(SD)	0.02

....

SYMMETRY--BETA 1 = 0.19
 KURTOSIS--BETA 11 = 2.87
 COEFFICIENT OF VARIATION = 4.57

....

SAMPLE SIZE = 2008

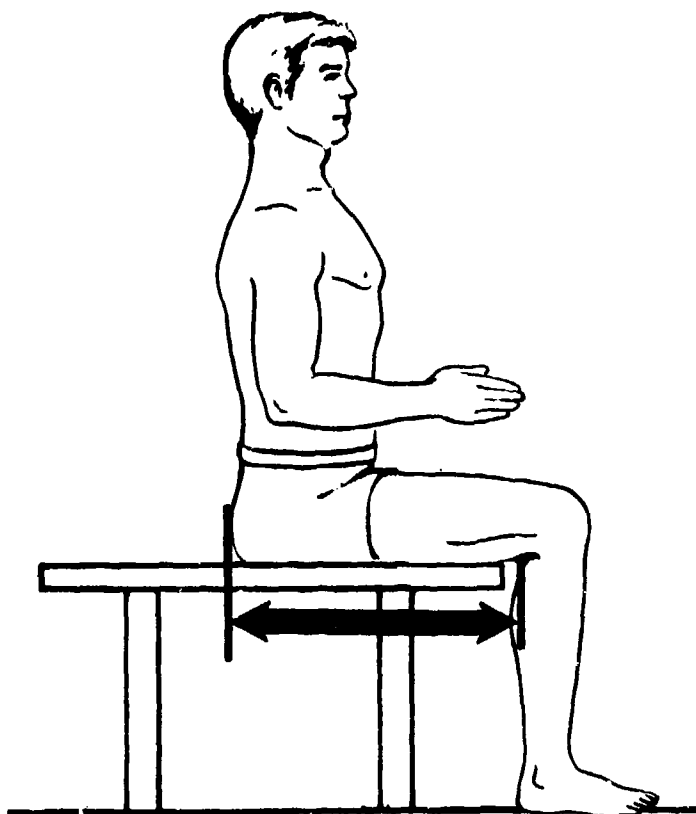
19 Buttock-Popliteal Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
58.55-	58.94	23.05-	23.20	2	2008	0.10	100.00
58.15-	58.54	22.89-	23.04	1	2006	0.05	99.90
57.75-	58.14	22.74-	22.88	2	2005	0.10	99.85
57.35-	57.74	22.58-	22.73	0	2003	0.00	99.75
56.95-	57.34	22.42-	22.57	4	2003	0.20	99.75
56.55-	56.94	22.26-	22.41	5	1999	0.25	99.55
56.15-	56.54	22.11-	22.25	7	1994	0.35	99.30
55.75-	56.14	21.95-	22.10	13	1987	0.65	98.95
55.35-	55.74	21.79-	21.94	18	1974	0.90	98.31
54.95-	55.34	21.63-	21.78	27	1956	1.34	97.41
54.55-	54.94	21.48-	21.62	21	1929	1.05	96.07
54.15-	54.54	21.32-	21.47	31	1908	1.54	95.02
53.75-	54.14	21.16-	21.31	47	1877	2.34	93.48
53.35-	53.74	21.00-	21.15	41	1830	2.04	91.14
52.95-	53.34	20.85-	20.99	48	1789	2.39	89.09
52.55-	52.94	20.69-	20.84	70	1741	3.49	86.70
52.15-	52.54	20.53-	20.68	72	1671	3.59	83.22
51.75-	52.14	20.37-	20.52	96	1599	4.78	79.63
51.35-	51.74	20.22-	20.36	121	1503	6.03	74.85
50.95-	51.34	20.06-	20.21	111	1382	5.53	68.82
50.55-	50.94	19.90-	20.05	84	1271	4.18	63.30
50.15-	50.54	19.74-	19.89	137	1187	6.82	59.11
49.75-	50.14	19.59-	19.73	120	1050	5.98	52.29
49.35-	49.74	19.43-	19.58	118	930	5.88	46.31
48.95-	49.34	19.27-	19.42	137	812	6.82	40.44
48.55-	48.94	19.11-	19.26	107	675	5.33	33.62
48.15-	48.54	18.96-	19.10	102	568	5.08	28.29
47.75-	48.14	18.80-	18.95	111	466	5.53	23.21
47.35-	47.74	18.64-	18.79	84	355	4.18	17.68
46.95-	47.34	18.48-	18.63	73	271	3.64	13.50
46.55-	46.94	18.33-	18.47	55	198	2.74	9.86
46.15-	46.54	18.17-	18.32	38	143	1.89	7.12
45.75-	46.14	18.01-	18.16	36	105	1.79	5.23
45.35-	45.74	17.85-	18.00	23	69	1.15	3.44
44.95-	45.34	17.70-	17.84	13	46	0.65	2.29
44.55-	44.94	17.54-	17.69	18	33	0.90	1.64
44.15-	44.54	17.38-	17.53	2	15	0.10	0.75
43.75-	44.14	17.22-	17.37	5	13	0.25	0.65
43.35-	43.74	17.07-	17.21	7	8	0.35	0.40
42.95-	43.34	16.91-	17.06	1	1	0.05	0.05

19 Buttock-Popliteal Length

PERCENTILES

CENTIMETERS		INCHES
56.25	99 TH	22.15
55.60	98 TH	21.89
55.15	97 TH	21.71
54.52	95 TH	21.46
53.51	90 TH	21.07
52.82	85 TH	20.79
52.27	80 TH	20.58
51.80	75 TH	20.39
51.39	70 TH	20.23
51.01	65 TH	20.08
50.65	60 TH	19.94
50.31	55 TH	19.81
49.98	50 TH	19.68
49.66	45 TH	19.55
49.34	40 TH	19.42
49.01	35 TH	19.29
48.67	30 TH	19.16
48.31	25 TH	19.02
47.92	20 TH	18.87
47.47	15 TH	18.69
46.92	10 TH	18.47
46.13	5 TH	18.16
45.61	3 RD	17.96
45.23	2 ND	17.81
44.61	1 ST	17.56



Buttock-Popliteal Length: Subject sits erect, with his feet resting on a surface adjusted so that his knees are bent at right angles. Buttock-popliteal length is measured as the horizontal distance from the back of the right buttock to the back of the right knee (popliteal area). An anthropometer is used.

THE SUMMARY STATISTICS

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CENTIMETERS		INCHES
50.11	MEAN	19.73
0.06	SE(M)	0.02
2.54	ST DEV	1.00
0.04	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.21
KURTOSIS--BETA II = 2.90
COEFFICIENT OF VARIATION = 5.08

....

SAMPLE SIZE = 2008

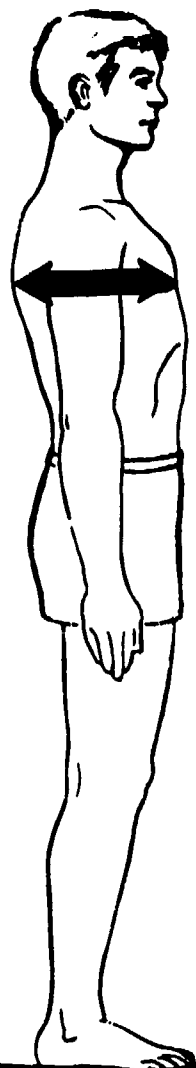
20 Chest Depth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
29.95-	30.24	11.79-	11.90	2	2008	0.10	100.00
29.65-	29.94	11.67-	11.78	0	2006	0.00	99.90
29.35-	29.64	11.56-	11.66	3	2006	0.15	99.90
29.05-	29.34	11.44-	11.55	1	2003	0.05	99.75
28.75-	29.04	11.32-	11.43	2	2002	0.10	99.70
28.45-	28.74	11.20-	11.31	4	2000	0.20	99.60
28.15-	28.44	11.08-	11.19	4	1996	0.20	99.40
27.85-	28.14	10.96-	11.07	4	1992	0.20	99.20
27.55-	27.84	10.85-	10.95	15	1988	0.75	99.00
27.25-	27.54	10.73-	10.84	15	1973	0.75	98.26
26.95-	27.24	10.61-	10.72	16	1958	0.80	97.51
26.65-	26.94	10.49-	10.60	10	1942	0.50	96.71
26.35-	26.64	10.37-	10.48	21	1932	1.05	96.22
26.05-	26.34	10.26-	10.36	32	1911	1.59	95.17
25.75-	26.04	10.14-	10.25	39	1879	1.94	93.58
25.45-	25.74	10.02-	10.13	57	1840	2.84	91.63
25.15-	25.44	9.90-	10.01	52	1783	2.59	88.79
24.85-	25.14	9.78-	9.89	69	1731	3.44	86.21
24.55-	24.84	9.67-	9.77	90	1662	4.48	82.77
24.25-	24.54	9.55-	9.66	107	1572	5.33	78.29
23.95-	24.24	9.43-	9.54	102	1465	5.08	72.96
23.65-	23.94	9.31-	9.42	126	1363	6.27	67.88
23.35-	23.64	9.19-	9.30	142	1237	7.07	61.60
23.05-	23.34	9.07-	9.18	142	1095	7.07	54.53
22.75-	23.04	8.96-	9.06	144	953	7.17	47.46
22.45-	22.74	8.84-	8.95	143	809	7.12	40.29
22.15-	22.44	8.72-	8.83	115	666	5.73	33.17
21.85-	22.14	8.60-	8.71	135	551	6.72	27.44
21.55-	21.84	8.48-	8.59	100	416	4.98	20.72
21.25-	21.54	8.37-	8.47	89	316	4.43	15.74
20.95-	21.24	8.25-	8.36	58	227	2.89	11.30
20.65-	20.94	8.13-	8.24	62	169	3.09	8.42
20.35-	20.64	8.01-	8.12	43	107	2.14	5.33
20.05-	20.34	7.89-	8.00	18	64	0.90	3.19
19.75-	20.04	7.78-	7.88	10	46	0.50	2.29
19.45-	19.74	7.66-	7.77	18	36	0.90	1.79
19.15-	19.44	7.54-	7.65	8	18	0.40	0.90
18.85-	19.14	7.42-	7.53	6	10	0.30	0.50
18.55-	18.84	7.30-	7.41	1	4	0.05	0.20
18.25-	18.54	7.19-	7.29	3	3	0.15	0.15

20 Chest Depth

PERCENTILES

CENTIMETERS		INCHES
27.95	99 TH	11.00
27.33	98 TH	10.76
26.94	97 TH	10.60
26.41	95 TH	10.40
25.61	90 TH	10.08
25.09	85 TH	9.88
24.70	80 TH	9.72
24.36	75 TH	9.59
24.08	70 TH	9.48
23.82	65 TH	9.38
23.58	60 TH	9.28
23.35	55 TH	9.19
23.14	50 TH	9.11
22.92	45 TH	9.03
22.72	40 TH	8.94
22.50	35 TH	8.86
22.29	30 TH	8.77
22.06	25 TH	8.68
21.80	20 TH	8.58
21.51	15 TH	8.47
21.15	10 TH	8.33
20.60	5 TH	8.11
20.23	3 RD	7.96
19.94	2 ND	7.85
19.46	1 ST	7.66



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
23.27	MEAN	9.16
0.04	SE(M)	0.02
1.76	ST DEV	0.69
0.03	SE(SD)	0.01

....

SYMMETRY--BETA I =	0.39
KURTOSIS--BETA II =	3.39
COEFFICIENT OF VARIATION =	7.57

....

SAMPLE SIZE = 2008

Chest Depth: Subject stands erect, with his arms initially raised and then lowered after the anthropometer is in place under the right arm. The depth of the chest is measured at the level of the nipples during normal breathing. An anthropometer is used, and is held horizontally.

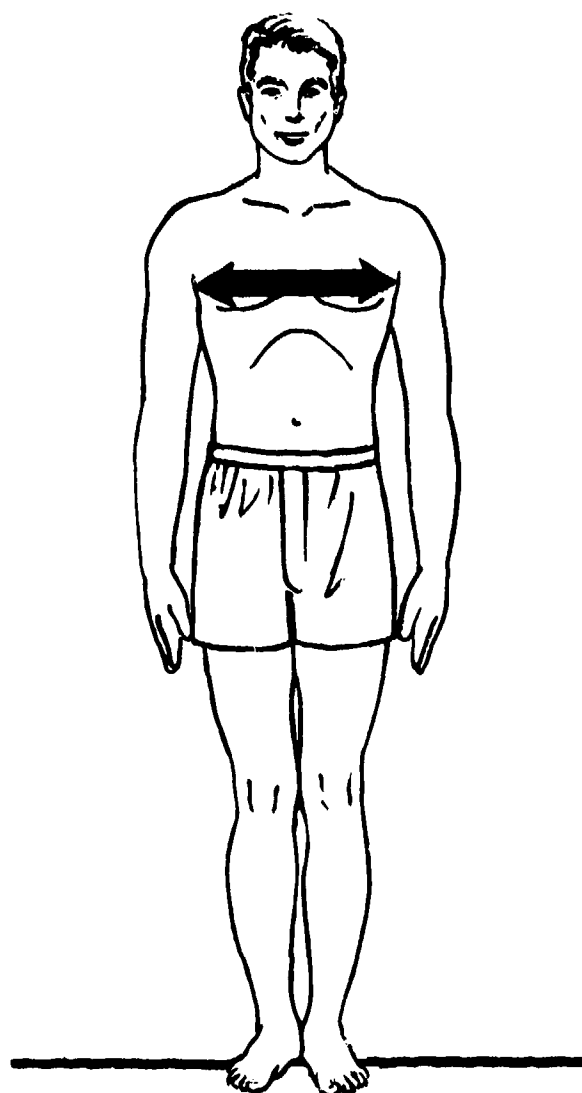
21 Chest Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
38.15-	38.44	15.02-	15.13	1	2008	0.05	100.00
37.85-	38.14	14.90-	15.01	0	2007	0.00	99.95
37.55-	37.84	14.78-	14.89	1	2007	0.05	99.95
37.25-	37.54	14.67-	14.77	1	2006	0.05	99.90
36.95-	37.24	14.55-	14.66	1	2005	0.05	99.85
36.65-	36.94	14.43-	14.54	2	2004	0.10	99.80
36.35-	36.64	14.31-	14.42	5	2002	0.25	99.70
36.05-	36.34	14.19-	14.30	4	1997	0.20	99.45
35.75-	36.04	14.07-	14.18	3	1993	0.15	99.25
35.45-	35.74	13.96-	14.06	5	1990	0.25	99.10
35.15-	35.44	13.84-	13.95	8	1985	0.40	98.85
34.85-	35.14	13.72-	13.83	13	1977	0.65	98.46
34.55-	34.84	13.60-	13.71	14	1964	0.70	97.81
34.25-	34.54	13.48-	13.59	19	1950	0.95	97.11
33.95-	34.24	13.37-	13.47	16	1931	0.80	96.17
33.65-	33.94	13.25-	13.36	37	1915	1.84	95.37
33.35-	33.64	13.13-	13.24	44	1878	2.19	93.53
33.05-	33.34	13.01-	13.12	62	1834	3.09	91.33
32.75-	33.04	12.89-	13.00	52	1772	2.59	88.25
32.45-	32.74	12.78-	12.88	75	1720	3.74	85.66
32.15-	32.44	12.66-	12.77	75	1645	3.74	81.92
31.85-	32.14	12.54-	12.65	101	1570	5.03	78.19
31.55-	31.84	12.42-	12.53	114	1469	5.68	73.16
31.25-	31.54	12.30-	12.41	97	1355	4.83	67.48
30.95-	31.24	12.19-	12.29	127	1258	6.32	62.65
30.65-	30.94	12.07-	12.18	132	1131	6.57	56.32
30.35-	30.64	11.95-	12.06	114	999	5.68	49.75
30.05-	30.34	11.83-	11.94	132	885	6.57	44.07
29.75-	30.04	11.71-	11.82	121	753	6.03	37.50
29.45-	29.74	11.59-	11.70	111	632	5.53	31.47
29.15-	29.44	11.48-	11.58	105	521	5.23	25.95
28.85-	29.14	11.36-	11.47	97	416	4.83	20.72
28.55-	28.84	11.24-	11.35	67	319	3.34	15.89
28.25-	28.54	11.12-	11.23	89	252	4.43	12.55
27.95-	28.24	11.00-	11.11	50	163	2.49	8.12
27.65-	27.94	10.89-	10.99	37	113	1.84	5.63
27.35-	27.64	10.77-	10.88	26	76	1.29	3.78
27.05-	27.34	10.65-	10.76	25	50	1.25	2.49
26.75-	27.04	10.53-	10.64	8	25	0.40	1.25
26.45-	26.74	10.41-	10.52	10	17	0.50	0.85
26.15-	26.44	10.30-	10.40	2	7	0.10	0.35
25.85-	26.14	10.18-	10.29	3	5	0.15	0.25
25.55-	25.84	10.06-	10.17	2	2	0.10	0.10

21 Chest Breadth

PERCENTILES

CENTIMETERS		INCHES
35.61	99 TH	14.02
34.93	98 TH	13.75
34.52	97 TH	13.59
33.98	95 TH	13.38
33.19	90 TH	13.07
32.68	85 TH	12.87
32.28	80 TH	12.71
31.95	75 TH	12.58
31.65	70 TH	12.46
31.38	65 TH	12.36
31.13	60 TH	12.26
30.89	55 TH	12.16
30.65	50 TH	12.07
30.41	45 TH	11.97
30.18	40 TH	11.88
29.94	35 TH	11.79
29.68	30 TH	11.69
29.41	25 TH	11.58
29.12	20 TH	11.46
28.78	15 TH	11.33
28.37	10 TH	11.17
27.80	5 TH	10.95
27.46	3 RD	10.81
27.22	2 ND	10.72
26.89	1 ST	10.59



Chest Breadth: Subject stands erect, with his arms initially raised and then lowered after the anthropometer is in place. The breadth of the chest is measured at the level of the nipples during normal breathing. An anthropometer is used, and is held horizontally.

THE SUMMARY STATISTICS

CENTIMETERS		INCHES
30.74	MEAN	12.10
0.04	SE(M)	0.02
1.88	ST DEV	0.74
0.03	SE(SD)	0.01
....		
SYMMETRY--BETA I		= 0.33
KURTOSIS--BETA II		= 3.13
COEFFICIENT OF VARIATION		= 6.13
....		
SAMPLE SIZE		= 2008

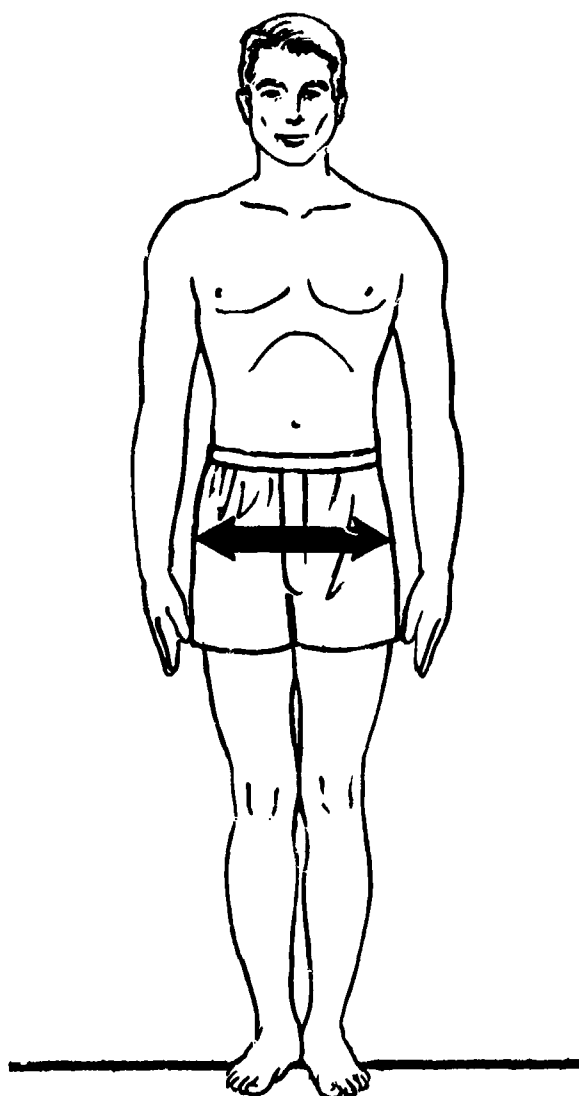
22 Hip Breadth, Standing

--INTERVALS--				--FREQUENCIES--		
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ
39.65-	39.94	15.61-	15.72	1	2008	0.05
39.35-	39.64	15.49-	15.60	1	2007	0.05
39.05-	39.34	15.37-	15.48	1	2006	0.05
38.75-	39.04	15.26-	15.36	1	2005	0.05
38.45-	38.74	15.14-	15.25	2	2004	0.10
38.15-	38.44	15.02-	15.13	4	2002	0.20
37.85-	38.14	14.90-	15.01	8	1998	0.40
37.55-	37.84	14.78-	14.89	9	1990	0.45
37.25-	37.54	14.67-	14.77	9	1981	0.45
36.95-	37.24	14.55-	14.66	13	1972	0.65
36.65-	36.94	14.43-	14.54	22	1959	1.10
36.35-	36.64	14.31-	14.42	20	1937	1.00
36.05-	36.34	14.19-	14.30	22	1917	1.10
35.75-	36.04	14.07-	14.18	39	1895	1.94
35.45-	35.74	13.96-	14.06	48	1856	2.39
35.15-	35.44	13.84-	13.95	56	1808	2.79
34.85-	35.14	13.72-	13.83	72	1752	3.59
34.55-	34.84	13.60-	13.71	97	1680	4.83
34.25-	34.54	13.48-	13.59	93	1583	4.63
33.95-	34.24	13.37-	13.47	125	1490	6.23
33.65-	33.94	13.25-	13.36	124	1365	6.18
33.35-	33.64	13.13-	13.24	121	1241	6.03
33.05-	33.34	13.01-	13.12	142	1120	7.07
32.75-	33.04	12.89-	13.00	137	978	6.82
32.45-	32.74	12.78-	12.88	145	841	7.22
32.15-	32.44	12.66-	12.77	122	696	6.08
31.85-	32.14	12.54-	12.65	117	574	5.83
31.55-	31.84	12.42-	12.53	107	457	5.33
31.25-	31.54	12.30-	12.41	108	350	5.38
30.95-	31.24	12.19-	12.29	65	242	3.24
30.65-	30.94	12.07-	12.18	51	177	2.54
30.35-	30.64	11.95-	12.06	37	126	1.84
30.05-	30.34	11.83-	11.94	33	89	1.64
29.75-	30.04	11.71-	11.82	22	56	1.10
29.45-	29.74	11.59-	11.70	17	34	0.85
29.15-	29.44	11.48-	11.58	5	17	0.25
28.85-	29.14	11.36-	11.47	5	12	0.25
28.55-	28.84	11.24-	11.35	4	7	0.20
28.25-	28.54	11.12-	11.23	3	3	0.15

22 Hip Breadth, Standing

PERCENTILES

CENTIMETERS		INCHES
37.80	99 TH	14.88
37.15	98 TH	14.62
36.75	97 TH	14.47
36.23	95 TH	14.26
35.47	90 TH	13.97
34.99	85 TH	13.78
34.62	80 TH	13.63
34.31	75 TH	13.51
34.03	70 TH	13.40
33.78	65 TH	13.30
33.55	60 TH	13.21
33.33	55 TH	13.12
33.11	50 TH	13.03
32.89	45 TH	12.95
32.68	40 TH	12.87
32.46	35 TH	12.78
32.23	30 TH	12.69
31.98	25 TH	12.59
31.71	20 TH	12.48
31.40	15 TH	12.36
31.01	10 TH	12.21
30.46	5 TH	11.99
30.11	3 RD	11.85
29.86	2 ND	11.76
29.48	1 ST	11.61



Hip Breadth, Standing: Subject stands erect, with heels together. The maximum breadth across the hips is measured. An anthropometer is used, and is held horizontally.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
33.19	MEAN	13.07
0.04	SE(M)	0.02
1.75	ST DEV	0.69
0.03	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.29
KURTOSIS--BETA II = 3.18
COEFFICIENT OF VARIATION = 5.26

....

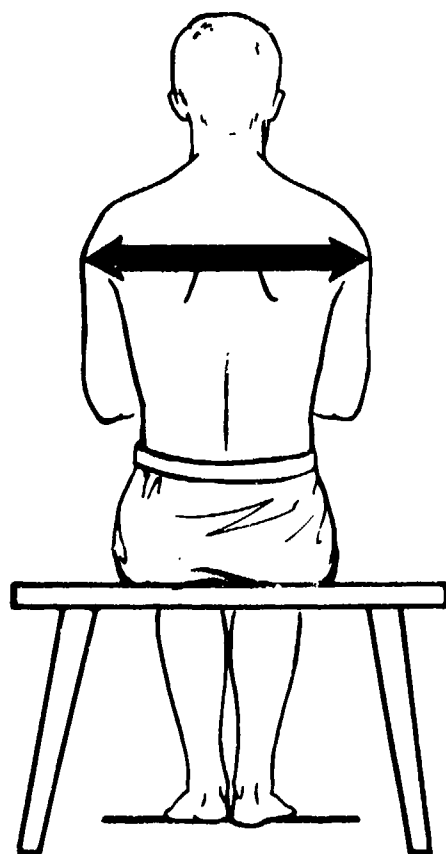
SAMPLE SIZE = 2008

23 Shoulder Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
57.45-	57.84	22.62-	22.77	1	2006	0.05	100.00
57.05-	57.44	22.46-	22.61	0	2007	0.00	99.95
56.6 -	57.04	22.30-	22.45	0	2007	0.00	99.95
56.25-	56.64	22.15-	22.29	0	2007	0.00	99.95
55.85-	56.24	21.99-	22.14	0	2007	0.00	99.95
55.45-	55.84	21.83-	21.98	0	2007	0.00	99.95
55.05-	55.44	21.67-	21.82	0	2007	0.00	99.95
54.65-	55.04	21.52-	21.66	0	2007	0.00	99.95
54.25-	54.64	21.36-	21.51	0	2007	0.00	99.95
53.85-	54.24	21.20-	21.35	1	2007	0.05	99.95
53.45-	53.84	21.04-	21.19	2	2006	0.10	99.90
53.05-	53.44	20.89-	21.03	1	2004	0.05	99.80
52.65-	53.04	20.73-	20.88	5	2003	0.25	99.75
52.25-	52.64	20.57-	20.72	7	1998	0.35	99.50
51.85-	52.24	20.41-	20.56	4	1991	0.20	99.15
51.45-	51.84	20.26-	20.40	3	1987	0.15	98.95
51.05-	51.44	20.10-	20.25	7	1984	0.35	98.80
50.65-	51.04	19.94-	20.09	14	1977	0.70	98.46
50.25-	50.64	19.78-	19.93	20	1963	1.00	97.76
49.85-	50.24	19.63-	19.77	15	1943	0.75	96.76
49.45-	49.84	19.47-	19.62	19	1928	0.95	96.02
49.05-	49.44	19.31-	19.46	37	1909	1.84	95.07
48.65-	49.04	19.15-	19.30	37	1872	1.84	93.23
48.25-	48.64	19.00-	19.14	53	1835	2.64	91.38
47.85-	48.24	18.84-	18.99	57	1782	2.84	88.75
47.45-	47.84	18.68-	18.83	76	1725	3.78	85.91
47.05-	47.44	18.52-	18.67	103	1649	5.13	82.12
46.65-	47.04	18.37-	18.51	117	1546	5.83	76.99
46.25-	46.64	18.21-	18.36	113	1429	5.63	71.17
45.85-	46.24	18.05-	18.20	130	1316	6.47	65.54
45.45-	45.84	17.89-	18.04	149	1186	7.42	59.06
45.05-	45.44	17.74-	17.88	162	1037	8.07	51.64
44.65-	45.04	17.58-	17.73	145	875	7.22	43.58
44.25-	44.64	17.42-	17.57	129	730	6.42	36.35
43.85-	44.24	17.26-	17.41	114	601	5.68	29.93
43.45-	43.84	17.11-	17.25	112	487	5.58	24.25
43.05-	43.44	16.95-	17.10	106	375	5.28	18.68
42.65-	43.04	16.79-	16.94	70	269	3.49	13.40
42.25-	42.64	16.63-	16.78	58	199	2.89	9.91
41.85-	42.24	16.48-	16.62	39	141	1.94	7.02
41.45-	41.84	16.32-	16.47	29	102	1.44	5.08
41.05-	41.44	16.16-	16.31	28	73	1.39	3.64
40.65-	41.04	16.00-	16.15	23	45	1.15	2.24
40.25-	40.64	15.85-	15.99	12	22	0.60	1.10
39.85-	40.24	15.69-	15.84	3	10	0.15	0.50
39.45-	39.84	15.53-	15.68	5	7	0.25	0.35
39.05-	39.44	15.37-	15.52	2	2	0.10	0.10

PERCENTILES

CENTIMETERS		INCHES
51.95	99 TH	20.45
50.86	98 TH	20.02
50.24	97 TH	19.78
49.47	95 TH	19.47
48.41	90 TH	19.06
47.77	85 TH	18.81
47.29	80 TH	18.62
46.90	75 TH	18.46
46.55	70 TH	18.33
46.24	65 TH	18.20
45.94	60 TH	18.09
45.66	55 TH	17.98
45.39	50 TH	17.87
45.11	45 TH	17.76
44.83	40 TH	17.65
44.55	35 TH	17.54
44.25	30 TH	17.42
43.92	25 TH	17.29
43.55	20 TH	17.15
43.13	15 TH	16.98
42.60	10 TH	16.77
41.83	5 TH	16.47
41.35	3 RD	16.28
41.01	2 ND	16.15
40.52	1 ST	15.95



Shoulder Breadth (Bideloid Breadth): Subject sits erect, with his arms bent to form right angles at the elbows and with his elbows held against the body. The maximum breadth across the shoulders is measured at the level of the bulges of the deltoid muscles in the upper arms. An anthropometer is used, and is held horizontally.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
45.48	MEAN	17.91
0.05	SE(M)	0.02
2.32	ST DEV	0.91
0.04	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.40
 KURTOSIS--BETA II = 3.64
 COEFFICIENT OF VARIATION = 5.09

....

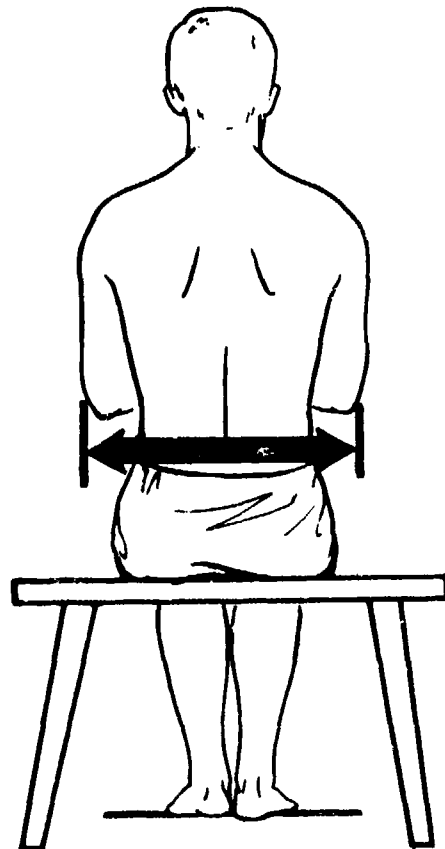
SAMPLE SIZE = 2008

24 Forearm-Forearm Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
64.25-	65.24	25.30-	25.68	1	2008	0.05	100.00
63.25-	64.24	24.90-	25.29	0	2007	0.00	99.95
62.25-	63.24	24.51-	24.89	1	2007	0.05	99.95
61.25-	62.24	24.11-	24.50	0	2006	0.00	99.90
60.25-	61.24	23.72-	24.10	2	2006	0.10	99.90
59.25-	60.24	23.33-	23.71	1	2004	0.05	99.80
58.25-	59.24	22.93-	23.32	4	2003	0.20	99.75
57.25-	58.24	22.54-	22.92	3	1999	0.15	99.55
56.25-	57.24	22.15-	22.53	4	1996	0.20	99.40
55.25-	56.24	21.75-	22.14	8	1992	0.40	99.20
54.25-	55.24	21.36-	21.74	16	1984	0.80	98.80
53.25-	54.24	20.96-	21.35	20	1968	1.00	98.01
52.25-	53.24	20.57-	20.95	36	1948	1.79	97.01
51.25-	52.24	20.18-	20.56	38	1912	1.89	95.22
50.25-	51.24	19.78-	20.17	61	1874	3.04	93.33
49.25-	50.24	19.39-	19.77	114	1813	5.68	90.29
48.25-	49.24	19.00-	19.38	125	1699	6.23	84.61
47.25-	48.24	18.60-	18.99	152	1574	7.57	78.39
46.25-	47.24	18.21-	18.59	230	1422	11.45	70.82
45.25-	46.24	17.82-	18.20	231	1192	11.50	59.36
44.25-	45.24	17.42-	17.81	233	961	11.60	47.86
43.25-	44.24	17.03-	17.41	216	728	10.75	36.25
42.25-	43.24	16.63-	17.02	169	512	8.42	25.50
41.25-	42.24	16.24-	16.62	146	343	7.27	17.08
40.25-	41.24	15.85-	16.23	93	197	4.63	9.81
39.25-	40.24	15.45-	15.84	58	104	2.89	5.18
38.25-	39.24	15.06-	15.44	25	46	1.25	2.29
37.25-	38.24	14.67-	15.05	14	21	0.70	1.05
36.25-	37.24	14.27-	14.66	7	7	0.35	0.35

24 Forearm-Forearm Breadth

PERCENTILES



CENTIMETERS		INCHES
55.79	99 TH	21.96
54.19	98 TH	21.33
53.24	97 TH	20.96
52.04	95 TH	20.49
50.34	90 TH	19.82
49.28	85 TH	19.40
48.49	80 TH	19.09
47.83	75 TH	18.83
47.27	70 TH	18.61
46.76	65 TH	18.41
46.28	60 TH	18.22
45.83	55 TH	18.04
45.40	50 TH	17.87
44.97	45 TH	17.70
44.54	40 TH	17.54
44.11	35 TH	17.37
43.66	30 TH	17.19
43.18	25 TH	17.00
42.64	20 TH	16.79
42.04	15 TH	16.55
41.28	10 TH	16.25
40.18	5 TH	15.82
39.49	3 RD	15.55
38.98	2 ND	15.35
38.21	1 ST	15.04

Forearm-Forearm Breadth (Elbow-To-Elbow Breadth): Subject sits erect, with his arms bent to form right angles at the elbows and with his elbows held against the body. The maximum breadth across the body is measured, including the arms at the level of the forearm muscles. An anthropometer is used, and is held horizontally.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
45.66	MEAN	17.98
0.08	SE(M)	0.03
3.65	ST DEV	1.44
0.06	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.60
KURTOSIS--BETA II = 4.11

COEFFICIENT OF VARIATION = 7.98

....

SAMPLE SIZE = 2008

25 Hip Breadth, Sitting

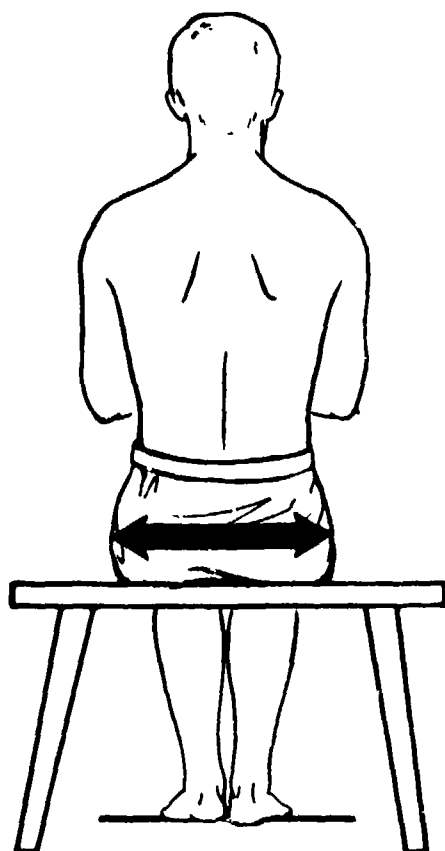
--INTERVALS--

--FREQUENCIES--

CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
42.85-	43.14	16.87-	16.98	1	2008	0.05	100.00
42.55-	42.84	16.75-	16.86	1	2007	0.05	99.95
42.25-	42.54	16.63-	16.74	1	2006	0.05	99.90
41.95-	42.24	16.52-	16.62	2	2005	0.10	99.85
41.65-	41.94	16.40-	16.51	1	2003	0.05	99.75
41.35-	41.64	16.28-	16.39	1	2002	0.05	99.70
41.05-	41.34	16.16-	16.27	2	2001	0.10	99.65
40.75-	41.04	16.04-	16.15	1	1999	0.05	99.55
40.45-	40.74	15.93-	16.03	1	1998	0.05	99.50
40.15-	40.44	15.81-	15.92	4	1997	0.20	99.45
39.85-	40.14	15.69-	15.80	5	1993	0.25	99.25
39.55-	39.84	15.57-	15.68	3	1988	0.15	99.00
39.25-	39.54	15.45-	15.56	1	1985	0.05	98.85
38.95-	39.24	15.33-	15.44	7	1984	0.35	98.80
38.65-	38.94	15.22-	15.32	7	1977	0.35	98.46
38.35-	38.64	15.10-	15.21	16	1970	0.80	98.11
38.05-	38.34	14.98-	15.09	17	1954	0.85	97.31
37.75-	38.04	14.86-	14.97	24	1937	1.20	96.46
37.45-	37.74	14.74-	14.85	28	1913	1.39	95.27
37.15-	37.44	14.63-	14.73	31	1885	1.54	93.87
36.85-	37.14	14.51-	14.62	38	1854	1.89	92.33
36.55-	36.84	14.39-	14.50	55	1816	2.74	90.44
36.25-	36.54	14.27-	14.38	59	1761	2.94	87.70
35.95-	36.24	14.15-	14.26	53	1702	2.64	84.76
35.65-	35.94	14.04-	14.14	83	1649	4.13	82.12
35.35-	35.64	13.92-	14.03	83	1566	4.13	77.99
35.05-	35.34	13.80-	13.91	96	1483	4.78	73.85
34.75-	35.04	13.68-	13.79	82	1387	4.08	69.07
34.45-	34.74	13.56-	13.67	99	1305	4.93	64.99
34.15-	34.44	13.45-	13.55	106	1206	5.28	60.06
33.85-	34.14	13.33-	13.44	128	1100	6.37	54.78
33.55-	33.84	13.21-	13.32	147	972	7.32	48.41
33.25-	33.54	13.09-	13.20	145	825	7.22	41.09
32.95-	33.24	12.97-	13.08	118	680	5.88	33.86
32.65-	32.94	12.85-	12.96	111	562	5.53	27.99
32.35-	32.64	12.74-	12.84	94	451	4.68	22.46
32.05-	32.34	12.62-	12.73	80	357	3.98	17.78
31.75-	32.04	12.50-	12.61	71	277	3.54	13.79
31.45-	31.74	12.38-	12.49	65	206	3.24	10.26
31.15-	31.44	12.26-	12.37	42	141	2.09	7.02
30.85-	31.14	12.15-	12.25	34	99	1.69	4.93
30.55-	30.84	12.03-	12.14	23	65	1.15	3.24
30.25-	30.54	11.91-	12.02	15	42	0.75	2.09
29.95-	30.24	11.79-	11.90	5	27	0.25	1.34
29.65-	29.94	11.67-	11.78	9	22	0.45	1.10
29.35-	29.64	11.56-	11.66	7	13	0.35	0.65
29.05-	29.34	11.44-	11.55	2	6	0.10	0.30
28.75-	29.04	11.32-	11.43	4	4	0.20	0.20

25 Hip Breadth, Sitting

PERCENTILES



CENTIMETERS		INCHES
39.66	99 TH	15.61
38.84	98 TH	15.29
38.34	97 TH	15.09
37.69	95 TH	14.84
36.76	90 TH	14.47
36.17	85 TH	14.24
35.73	80 TH	14.07
35.36	75 TH	13.92
35.04	70 TH	13.80
34.75	65 TH	13.68
34.49	60 TH	13.58
34.24	55 TH	13.48
34.00	50 TH	13.38
33.76	45 TH	13.29
33.52	40 TH	13.20
33.29	35 TH	13.10
33.04	30 TH	13.01
32.78	25 TH	12.90
32.49	20 TH	12.79
32.16	15 TH	12.66
31.75	10 TH	12.50
31.14	5 TH	12.26
30.74	3 RD	12.10
30.44	2 ND	11.99
29.97	1 ST	11.80

Hip Breadth, Sitting: Subject sits erect, with knees together. The maximum breadth across the hips is measured. An anthropometer is used, and is held horizontally.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
34.16	MEAN	13.45
0.04	SE(M)	0.02
2.02	ST DEV	0.79
0.03	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.52
KURTOSIS--BETA II = 3.68
COEFFICIENT OF VARIATION = 5.90

....

SAMPLE SIZE = 2008

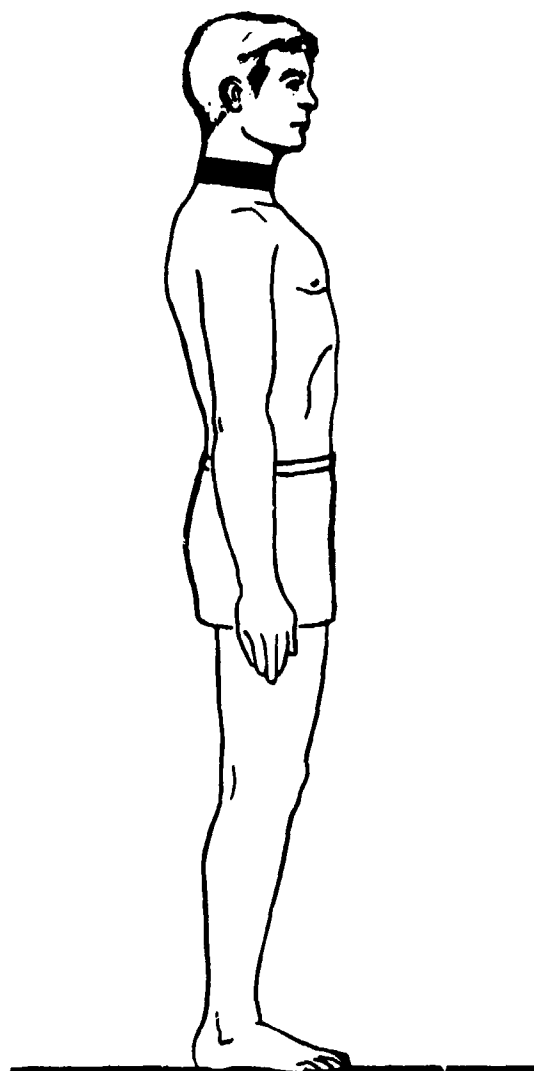
28 Neck Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
45.45-	45.74	17.89-	18.00	1	2008	0.05	100.00
45.15-	45.44	17.78-	17.88	1	2007	0.05	99.95
44.85-	45.14	17.66-	17.77	0	2006	0.00	99.90
44.55-	44.84	17.54-	17.65	0	2006	0.00	99.90
44.25-	44.54	17.42-	17.53	1	2006	0.05	99.90
43.95-	44.24	17.30-	17.41	2	2005	0.10	99.85
43.65-	43.94	17.19-	17.29	5	2003	0.25	99.75
43.35-	43.64	17.07-	17.18	0	1998	0.00	99.50
43.05-	43.34	16.95-	17.06	4	1998	0.20	99.50
42.75-	43.04	16.83-	16.94	2	1994	0.10	99.30
42.45-	42.74	16.71-	16.82	7	1992	0.35	99.20
42.15-	42.44	16.59-	16.70	7	1985	0.35	98.85
41.85-	42.14	16.48-	16.58	13	1978	0.65	98.51
41.55-	41.84	16.36-	16.47	11	1965	0.55	97.86
41.25-	41.54	16.24-	16.35	22	1954	1.10	97.31
40.95-	41.24	16.12-	16.23	27	1932	1.34	96.22
40.65-	40.94	16.00-	16.11	23	1905	1.15	94.87
40.35-	40.64	15.89-	15.99	27	1882	1.34	93.73
40.05-	40.34	15.77-	15.88	67	1855	3.34	92.38
39.75-	40.04	15.65-	15.76	69	1788	3.44	89.04
39.45-	39.74	15.53-	15.64	67	1719	3.34	85.61
39.15-	39.44	15.41-	15.52	81	1652	4.03	82.27
38.85-	39.14	15.30-	15.40	86	1571	4.28	78.24
38.55-	38.84	15.18-	15.29	125	1485	6.23	73.95
38.25-	38.54	15.06-	15.17	75	1360	3.74	67.73
37.95-	38.24	14.94-	15.05	142	1285	7.07	63.99
37.65-	37.94	14.82-	14.93	132	1143	6.57	56.92
37.35-	37.64	14.70-	14.81	116	1011	5.78	50.35
37.05-	37.34	14.59-	14.69	163	895	8.12	44.57
36.75-	37.04	14.47-	14.58	101	732	5.03	36.45
36.45-	36.74	14.35-	14.46	106	631	5.28	31.42
36.15-	36.44	14.23-	14.34	106	525	5.28	26.15
35.85-	36.14	14.11-	14.22	82	419	4.08	20.87
35.55-	35.84	14.00-	14.10	104	337	5.18	16.78
35.25-	35.54	13.88-	13.99	49	233	2.44	11.60
34.95-	35.24	13.76-	13.87	58	184	2.89	9.16
34.65-	34.94	13.64-	13.75	40	126	1.99	6.27
34.35-	34.64	13.52-	13.63	23	86	1.15	4.28
34.05-	34.34	13.41-	13.51	27	63	1.34	3.14
33.75-	34.04	13.29-	13.40	8	36	0.40	1.79
33.45-	33.74	13.17-	13.28	5	28	0.25	1.39
33.15-	33.44	13.05-	13.16	12	23	0.60	1.15
32.85-	33.14	12.93-	13.04	5	11	0.25	0.55
32.55-	32.84	12.82-	12.92	1	6	0.05	0.30
32.25-	32.54	12.70-	12.81	1	5	0.05	0.25
31.95-	32.24	12.58-	12.69	0	4	0.00	0.20
31.65-	31.94	12.46-	12.57	1	4	0.05	0.20
31.35-	31.64	12.34-	12.45	2	3	0.10	0.15
31.05-	31.34	12.22-	12.33	1	1	0.05	0.05

26 Neck Circumference

PERCENTILES

CENTIMETERS		INCHES
42.55	99 TH	16.75
41.91	98 TH	16.50
41.52	97 TH	16.34
40.98	95 TH	16.13
40.18	90 TH	15.82
39.66	85 TH	15.61
39.26	80 TH	15.46
38.92	75 TH	15.32
38.62	70 TH	15.20
38.35	65 TH	15.10
38.09	60 TH	15.00
37.85	55 TH	14.90
37.62	50 TH	14.81
37.39	45 TH	14.72
37.16	40 TH	14.63
36.92	35 TH	14.54
36.68	30 TH	14.44
36.42	25 TH	14.34
36.13	20 TH	14.22
35.79	15 TH	14.09
35.37	10 TH	13.92
34.73	5 TH	13.67
34.31	3 PD	13.51
33.99	2 ND	13.38
33.46	1 ST	13.17



Neck Circumference: Subject stands erect, with head level. The maximum circumference of the neck is measured. A steel tape is used, with the tape passing just below the "Adam's Apple" (thyroid cartilage).

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
37.71	MEAN	14.84
0.04	SE(M)	0.02
1.91	ST DEV	0.75
0.03	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.25
KURTOSIS--BETA II = 3.38

COEFFICIENT OF VARIATION = 5.06

....

SAMPLE SIZE = 2008

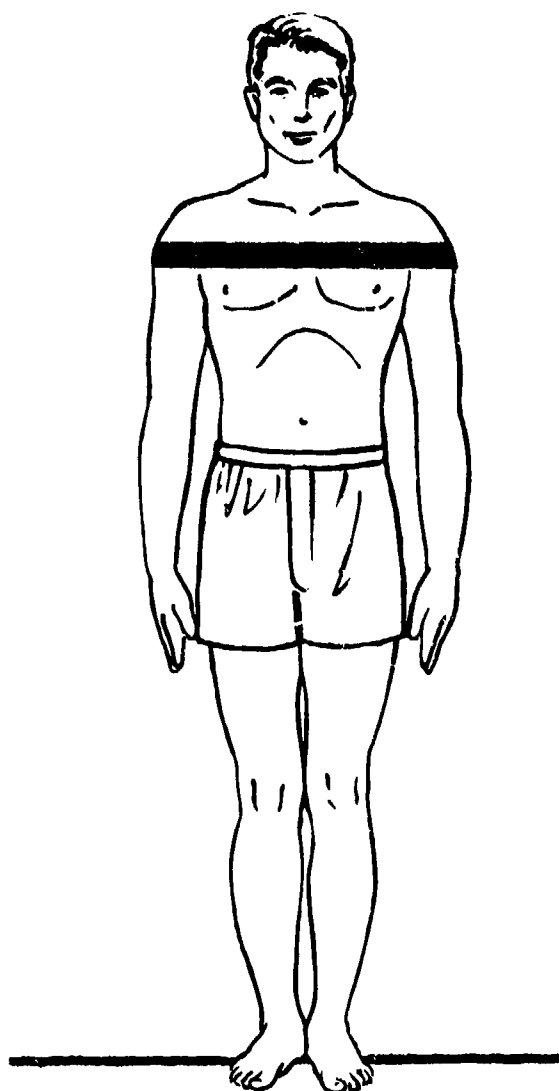
27 Shoulder Circumference

--INTERVALS--		--FREQUENCIES--					
CENTIMETERS		INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ	
139.75-	140.74	55.02-	55.40	2	2008	0.10	100.00
138.75-	139.74	54.63-	55.01	0	2006	0.00	99.90
137.75-	138.74	54.23-	54.62	0	2006	0.00	99.90
136.75-	137.74	53.84-	54.22	1	2006	0.05	99.90
135.75-	136.74	53.44-	53.83	0	2005	0.00	99.85
134.75-	135.74	53.05-	53.43	2	2005	0.10	99.85
133.75-	134.74	52.66-	53.04	0	2003	0.00	99.75
132.75-	133.74	52.26-	52.65	2	2003	0.10	99.75
131.75-	132.74	51.87-	52.25	2	2001	0.10	99.65
130.75-	131.74	51.48-	51.86	5	1999	0.25	99.55
129.75-	130.74	51.08-	51.47	4	1994	0.20	99.30
128.75-	129.74	50.69-	51.07	6	1990	0.30	99.10
127.75-	128.74	50.30-	50.68	8	1984	0.40	98.80
126.75-	127.74	49.90-	50.29	11	1976	0.55	98.41
125.75-	126.74	49.51-	49.89	13	1965	0.65	97.86
124.75-	125.74	49.11-	49.50	16	1952	0.80	97.21
123.75-	124.74	48.72-	49.10	27	1936	1.34	96.41
122.75-	123.74	48.33-	48.71	27	1909	1.34	95.07
121.75-	122.74	47.93-	48.32	38	1882	1.89	93.73
120.75-	121.74	47.54-	47.92	45	1844	2.24	91.83
119.75-	120.74	47.15-	47.53	66	1799	3.29	89.59
118.75-	119.74	46.75-	47.14	67	1733	3.34	86.30
117.75-	118.74	46.36-	46.74	96	1666	4.78	82.97
116.75-	117.74	45.96-	46.35	98	1570	4.88	78.19
115.75-	116.74	45.57-	45.95	125	1472	6.23	73.31
114.75-	115.74	45.18-	45.56	128	1347	6.37	67.08
113.75-	114.74	44.78-	45.17	143	1219	7.12	60.71
112.75-	113.74	44.39-	44.77	157	1076	7.82	53.59
111.75-	112.74	44.00-	44.38	143	919	7.12	45.77
110.75-	111.74	43.60-	43.99	145	776	7.22	38.65
109.75-	110.74	43.21-	43.59	136	631	6.77	31.42
108.75-	109.74	42.82-	43.20	103	495	5.13	24.65
107.75-	108.74	42.42-	42.81	92	392	4.58	19.52
106.75-	107.74	42.03-	42.41	88	300	4.38	14.94
105.75-	106.74	41.63-	42.02	55	212	3.24	10.56
104.75-	105.74	41.24-	41.62	40	147	1.99	7.32
103.75-	104.74	40.85-	41.23	39	107	1.94	5.33
102.75-	103.74	40.45-	40.84	24	68	1.20	3.39
101.75-	102.74	40.06-	40.44	21	44	1.05	2.19
100.75-	101.74	39.67-	40.05	15	23	0.75	1.15
99.75-	100.74	39.27-	39.66	6	8	0.30	0.40
98.75-	99.74	38.88-	39.26	2	2	0.10	0.10

27 Shoulder Circumference

PERCENTILES

CENTIMETERS		INCHES
129.49	99 TH	50.98
126.94	98 TH	49.98
125.46	97 TH	49.39
123.59	95 TH	48.66
120.98	90 TH	47.63
119.36	85 TH	46.99
118.14	80 TH	46.51
117.13	75 TH	46.11
116.25	70 TH	45.77
115.45	65 TH	45.45
114.71	60 TH	45.16
114.00	55 TH	44.88
113.31	50 TH	44.61
112.62	45 TH	44.34
111.93	40 TH	44.07
111.23	35 TH	43.79
110.49	30 TH	43.50
109.69	25 TH	43.18
108.80	20 TH	42.84
107.78	15 TH	42.43
106.51	10 TH	41.93
104.66	5 TH	41.21
103.50	3 RD	40.75
102.67	2 ND	40.42
101.43	1 ST	39.93



Shoulder Circumference: Subject stands erect, with his arms hanging at his sides. The maximum horizontal circumference of the shoulders is measured at the level of the bulges of the deltoid muscles in the upper arms. A steel tape is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
113.61	MEAN	44.73
0.13	SE(M)	0.05
5.76	ST DEV	2.27
0.09	SE(SD)	0.04

....

SYMMETRY--BETA I = 0.47
KURTOSIS--BETA II = 3.69
COEFFICIENT OF VARIATION = 5.07

....

SAMPLE SIZE = 2008

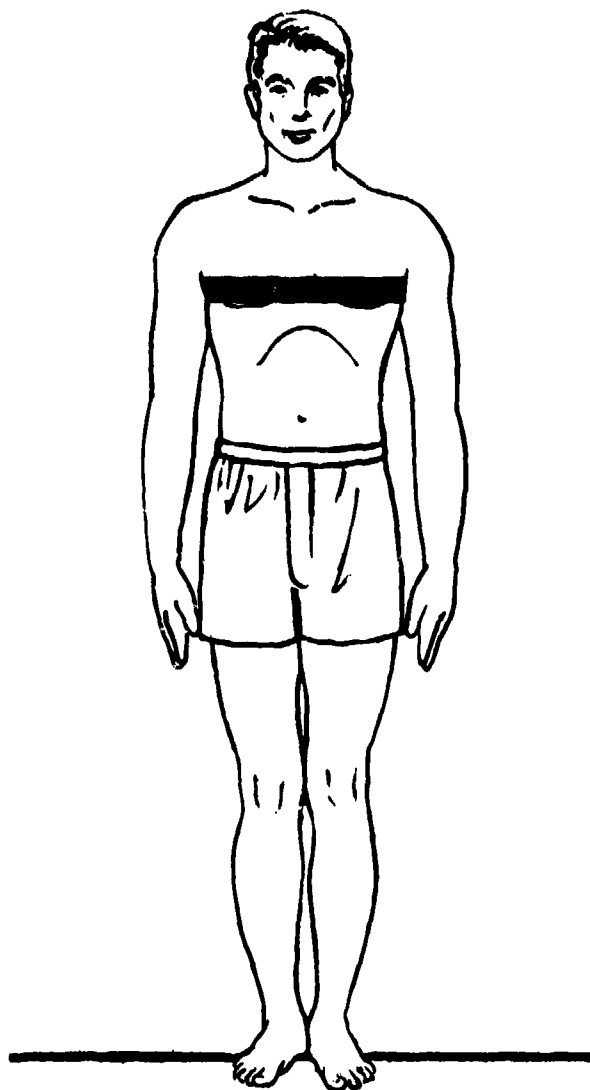
28 Chest Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCENT T-FREQ	CUMUL- PCT-FQ
124.25-	125.24	48.92-	49.30	1	2008	0.05	100.00
123.25-	124.24	48.52-	48.91	0	2007	0.00	99.95
122.25-	123.24	48.13-	48.51	0	2007	0.00	99.95
121.25-	122.24	47.74-	48.12	0	2007	0.00	99.95
120.25-	121.24	47.34-	47.73	0	2007	0.00	99.95
119.25-	120.24	46.95-	47.33	1	2007	0.05	99.95
118.25-	119.24	46.56-	46.94	0	2006	0.00	99.90
117.25-	118.24	46.16-	46.55	0	2006	0.00	99.90
116.25-	117.24	45.77-	46.15	0	2006	0.00	99.90
115.25-	116.24	45.37-	45.76	1	2006	0.05	99.90
114.25-	115.24	44.98-	45.36	0	2005	0.00	99.85
113.25-	114.24	44.59-	44.97	3	2005	0.15	99.85
112.25-	113.24	44.19-	44.58	4	2002	0.20	99.70
111.25-	112.24	43.80-	44.18	5	1998	0.25	99.50
110.25-	111.24	43.41-	43.79	4	1993	0.20	99.25
109.25-	110.24	43.01-	43.40	8	1989	0.40	99.05
108.25-	109.24	42.62-	43.00	8	1981	0.40	98.66
107.25-	108.24	42.22-	42.61	15	1973	0.75	98.26
106.25-	107.24	41.83-	42.21	16	1958	0.80	97.51
105.25-	106.24	41.44-	41.82	25	1942	1.25	96.71
104.25-	105.24	41.04-	41.43	32	1917	1.59	95.47
103.25-	104.24	40.65-	41.03	25	1885	1.25	93.87
102.25-	103.24	40.26-	40.64	29	1860	1.44	92.63
101.25-	102.24	39.86-	40.25	43	1831	2.14	91.19
100.25-	101.24	39.47-	39.85	54	1788	2.69	89.04
99.25-	100.24	39.07-	39.46	84	1734	4.18	86.35
98.25-	99.24	38.68-	39.06	109	1650	5.43	82.17
97.25-	98.24	38.29-	38.67	93	1541	4.63	76.74
96.25-	97.24	37.89-	38.28	106	1448	5.28	72.11
95.25-	96.24	37.50-	37.88	160	1342	7.97	66.83
94.25-	95.24	37.11-	37.49	117	1182	5.83	58.86
93.25-	94.24	36.71-	37.10	141	1065	7.02	53.04
92.25-	93.24	36.32-	36.70	142	924	7.42	46.02
91.25-	92.24	35.93-	36.31	119	775	5.93	38.60
90.25-	91.24	35.53-	35.92	141	656	7.02	32.67
89.25-	90.24	35.14-	35.52	123	515	6.13	25.65
88.25-	89.24	34.74-	35.13	101	392	5.03	19.52
87.25-	88.24	34.35-	34.73	98	291	4.88	14.49
86.25-	87.24	33.96-	34.34	54	193	2.69	9.61
85.25-	86.24	33.56-	33.95	49	139	2.44	6.92
84.25-	85.24	33.17-	33.55	33	90	1.64	4.48
83.25-	84.24	32.78-	33.16	25	57	1.25	2.84
82.25-	83.24	32.38-	32.77	19	32	0.95	1.59
81.25-	82.24	31.99-	32.37	10	13	0.50	0.65
80.25-	81.24	31.59-	31.98	3	3	0.15	0.15

28 Chest Circumference

PERCENTILES

CENTIMETERS		INCHES
110.25	99 TH	43.40
107.90	98 TH	42.48
106.47	97 TH	41.92
104.61	95 TH	41.19
101.92	90 TH	40.13
100.21	85 TH	39.45
98.91	80 TH	38.94
97.83	75 TH	38.51
96.89	70 TH	38.14
96.04	65 TH	37.81
95.25	60 TH	37.50
94.51	55 TH	37.21
93.79	50 TH	36.93
93.08	45 TH	36.65
92.39	40 TH	36.37
91.68	35 TH	36.09
90.95	30 TH	35.81
90.17	25 TH	35.50
89.32	20 TH	35.17
88.36	15 TH	34.79
87.18	10 TH	34.32
85.50	5 TH	33.66
84.44	3 RD	33.24
83.68	2 ND	32.94
82.51	1 ST	32.48



Chest Circumference: Subject stands erect, with his arms initially raised and then lowered after the tape is in place. The maximum horizontal circumference of the chest is measured at the level of the nipples during normal breathing. A steel tape is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
94.26	MEAN	37.11
0.13	SE(M)	0.05
5.83	ST DEV	2.30
0.09	SE(SD)	0.04

....

SYMMETRY--BETA I =	0.55
KURTOSIS--BETA II =	3.62
COEFFICIENT OF VARIATION =	6.19

....

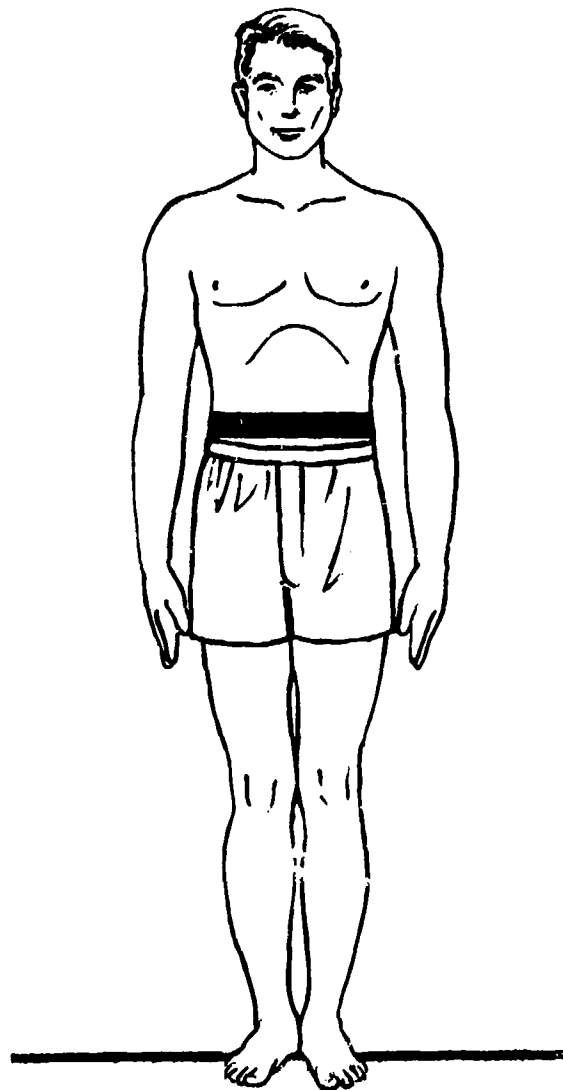
SAMPLE SIZE = 2008

29 Waist Circumference

--INTERVALS--		--FREQUENCIES--			
CENTIMETERS	INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
110.25- 111.24	43.41- 43.79	1	2008	0.05	100.00
109.25- 110.24	43.01- 43.40	0	2007	0.00	99.95
108.25- 109.24	42.62- 43.00	0	2007	0.00	99.95
107.25- 108.24	42.22- 42.61	2	2007	0.10	99.95
106.25- 107.24	41.83- 42.21	1	2005	0.05	99.85
105.25- 106.24	41.44- 41.82	0	2004	0.00	99.80
104.25- 105.24	41.04- 41.43	2	2004	0.10	99.80
103.25- 104.24	40.65- 41.03	1	2002	0.05	99.70
102.25- 103.24	40.26- 40.64	1	2001	0.05	99.65
101.25- 102.24	39.86- 40.25	3	2000	0.15	99.60
100.25- 101.24	39.47- 39.85	3	1997	0.15	99.45
99.25- 100.24	39.07- 39.46	3	1994	0.15	99.30
98.25- 99.24	38.68- 39.06	4	1991	0.20	99.15
97.25- 98.24	38.29- 38.67	6	1987	0.30	98.95
96.25- 97.24	37.89- 38.28	5	1981	0.25	98.64
95.25- 96.24	37.50- 37.88	11	1976	0.55	98.41
94.25- 95.24	37.11- 37.49	10	1965	0.50	97.86
93.25- 94.24	36.71- 37.10	7	1955	0.35	97.36
92.25- 93.24	36.32- 36.70	17	1948	0.85	97.01
91.25- 92.24	35.93- 36.31	14	1931	0.70	96.17
90.25- 91.24	35.53- 35.92	13	1917	0.65	95.47
89.25- 90.24	35.14- 35.52	25	1904	1.25	94.82
88.25- 89.24	34.74- 35.13	27	1879	1.34	93.58
87.25- 88.24	34.35- 34.73	51	1852	2.54	92.23
86.25- 87.24	33.96- 34.34	42	1801	2.09	89.69
85.25- 86.24	33.56- 33.95	68	1759	3.39	87.60
84.25- 85.24	33.17- 33.55	63	1691	3.14	84.21
83.25- 84.24	32.78- 33.16	85	1628	4.23	81.08
82.25- 83.24	32.38- 32.77	86	1543	4.28	76.84
81.25- 82.24	31.99- 32.37	117	1457	5.83	72.56
80.25- 81.24	31.59- 31.98	135	1340	6.72	66.73
79.25- 80.24	31.20- 31.58	132	1205	6.57	60.01
78.25- 79.24	30.81- 31.19	114	1073	5.68	53.44
77.25- 78.24	30.41- 30.80	122	959	6.08	47.76
76.25- 77.24	30.02- 30.40	136	837	6.87	41.68
75.25- 76.24	29.63- 30.01	133	699	6.62	34.81
74.25- 75.24	29.23- 29.62	153	566	7.62	28.19
73.25- 74.24	28.84- 29.22	108	413	5.38	20.57
72.25- 73.24	28.45- 28.83	98	305	4.88	15.19
71.25- 72.24	28.05- 28.44	63	207	3.14	10.31
70.25- 71.24	27.66- 28.04	42	144	2.09	7.17
69.25- 70.24	27.26- 27.65	35	102	1.74	5.08
68.25- 69.24	26.87- 27.25	28	67	1.39	3.34
67.25- 68.24	26.48- 26.86	19	39	0.95	1.94
66.25- 67.24	26.08- 26.47	11	20	0.55	1.00
65.25- 66.24	25.69- 26.07	6	9	0.30	0.45
64.25- 65.24	25.30- 25.68	1	3	0.05	0.15
63.25- 64.24	24.90- 25.29	2	2	0.10	0.10

29 Waist Circumference

PERCENTILES



Waist Circumference: Subject stands erect, with abdomen relaxed. The maximum horizontal circumference of the waist is measured at the level of the navel (omphalion). A steel tape is used.

CENTIMETERS		INCHES
98.60	99 TH	38.82
95.19	98 TH	37.48
93.23	97 TH	36.70
90.78	95 TH	35.74
87.45	90 TH	34.43
85.45	85 TH	33.64
84.00	80 TH	33.07
82.81	75 TH	32.60
81.80	70 TH	32.20
80.91	65 TH	31.85
80.09	60 TH	31.53
79.32	55 TH	31.23
78.59	50 TH	30.94
77.87	45 TH	30.66
77.16	40 TH	30.38
76.45	35 TH	30.10
75.71	30 TH	29.81
74.93	25 TH	29.50
74.07	20 TH	29.16
73.11	15 TH	28.78
71.91	10 TH	28.31
70.20	5 TH	27.64
69.12	3 ND	27.21
68.36	2 ND	26.91
67.20	1 ST	26.46

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
79.29	MEAN	31.22
0.14	SE(M)	0.06
6.34	ST DEV	2.49
0.10	SE(SD)	0.04

....

SYMMETRY--BETA I = 0.81
KURTOSIS--BETA II = 4.38
COEFFICIENT OF VARIATION = 7.99

....

SAMPLE SIZE = 2008

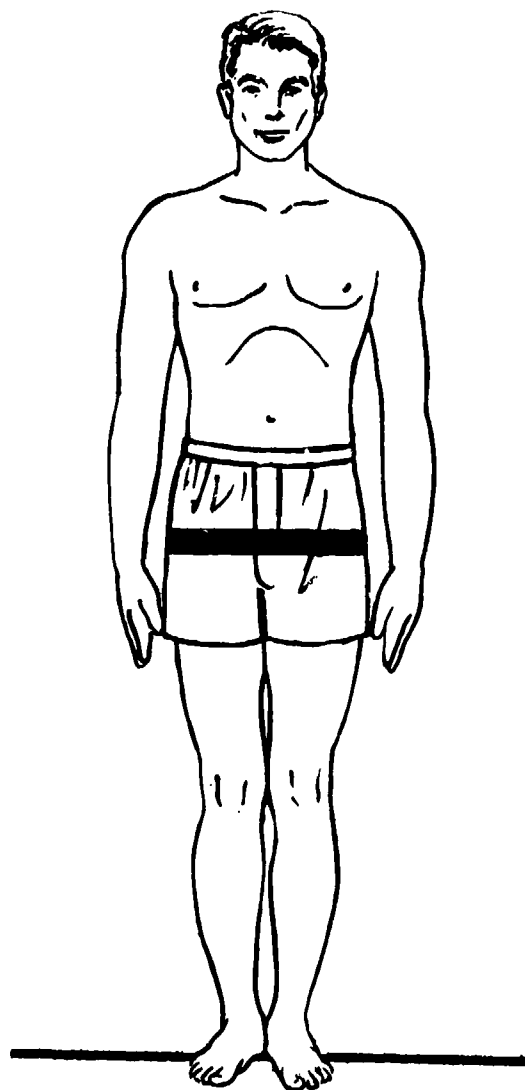
30 Hip Circumference

--INTERVALS--		--FREQUENCIES--					
CENTIMETERS	INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ		
115.75- 116.74	45.57- 45.95	1	2008	0.05	100.00		
114.75- 115.74	45.18- 45.56	1	2007	0.05	99.95		
113.75- 114.74	44.78- 45.17	1	2006	0.05	99.90		
112.75- 113.74	44.39- 44.77	4	2005	0.20	99.85		
111.75- 112.74	44.00- 44.38	2	2001	0.10	99.65		
110.75- 111.74	43.60- 43.99	2	1999	0.10	99.55		
109.75- 110.74	43.21- 43.59	12	1997	0.60	99.45		
108.75- 109.74	42.82- 43.20	1	1985	0.05	98.85		
107.75- 108.74	42.42- 42.81	4	1984	0.20	98.80		
106.75- 107.74	42.03- 42.41	9	1980	0.45	98.61		
105.75- 106.74	41.63- 42.02	11	1971	0.55	98.16		
104.75- 105.74	41.24- 41.62	24	1960	1.20	97.61		
103.75- 104.74	40.85- 41.23	33	1936	1.64	96.41		
102.75- 103.74	40.45- 40.84	43	1903	2.14	94.77		
101.75- 102.74	40.06- 40.44	58	1860	2.89	92.63		
100.75- 101.74	39.67- 40.05	55	1802	2.74	89.74		
99.75- 100.74	39.27- 39.66	110	1747	5.48	87.00		
98.75- 99.74	38.88- 39.26	81	1637	4.03	81.52		
97.75- 98.74	38.48- 38.87	96	1556	4.78	77.49		
96.75- 97.74	38.09- 38.47	119	1460	5.93	72.71		
95.75- 96.74	37.70- 38.08	128	1341	6.37	66.78		
94.75- 95.74	37.30- 37.69	145	1213	7.22	60.41		
93.75- 94.74	36.91- 37.29	175	1068	8.72	53.19		
92.75- 93.74	36.52- 36.90	151	893	7.52	44.47		
91.75- 92.74	36.12- 36.51	156	742	7.77	36.95		
90.75- 91.74	35.73- 36.11	153	586	7.62	29.18		
89.75- 90.74	35.33- 35.72	130	433	6.47	21.56		
88.75- 89.74	34.94- 35.32	94	303	4.68	15.09		
87.75- 88.74	34.55- 34.93	64	209	3.19	10.41		
86.75- 87.74	34.15- 34.54	52	145	2.59	7.22		
85.75- 86.74	33.76- 34.14	41	93	2.04	4.63		
84.75- 85.74	33.37- 33.75	22	52	1.10	2.59		
83.75- 84.74	32.97- 33.36	13	30	0.65	1.49		
82.75- 83.74	32.58- 32.96	10	17	0.50	0.85		
81.75- 82.74	32.19- 32.57	3	7	0.15	0.35		
80.75- 81.74	31.79- 32.18	2	4	0.10	0.20		
79.75- 80.74	31.40- 31.78	2	2	0.10	0.10		

30 Hip Circumference

PERCENTILES

CENTIMETERS		INCHES
109.39	99 TH	43.07
107.07	98 TH	42.15
105.72	97 TH	41.62
104.00	95 TH	40.94
101.59	90 TH	39.99
100.09	85 TH	39.41
98.97	80 TH	38.96
98.03	75 TH	38.60
97.22	70 TH	38.28
96.49	65 TH	37.99
95.81	60 TH	37.72
95.16	55 TH	37.46
94.53	50 TH	37.22
93.90	45 TH	36.97
93.28	40 TH	36.72
92.64	35 TH	36.47
91.98	30 TH	36.21
91.27	25 TH	35.93
90.48	20 TH	35.62
89.58	15 TH	35.27
88.46	10 TH	34.83
86.86	5 TH	34.20
85.87	3 RD	33.81
85.17	2 ND	33.53
84.12	1 ST	33.12



Hip Circumference: Subject stands erect, with heels together. The maximum horizontal circumference of the hips is measured at the level of the greatest protrusion of the buttock muscles. A steel tape is used.

THE SUMMARY STATISTICS

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CENTIMETERS		INCHES
94.85	MEAN	37.34
0.12	SE(M)	0.05
5.23	ST DEV	2.06
0.08	SE(SD)	0.03

....

SYMMETRY--BETA I = 0.46

KURTOSIS--BETA II = 3.42

COEFFICIENT OF VARIATION = 5.52

....

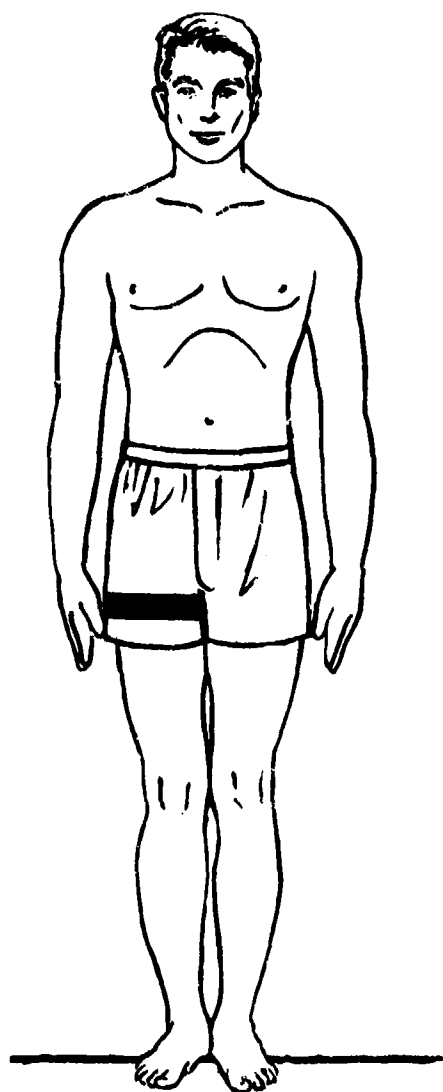
SAMPLE SIZE = 2008

31 Upper Thigh Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
72.25-	73.24	28.45-	28.83	1	2008	0.05	100.00
71.25-	72.24	28.05-	28.44	2	2007	0.10	99.95
70.25-	71.24	27.66-	28.04	2	2005	0.10	99.85
69.25-	70.24	27.26-	27.65	2	2003	0.10	99.75
68.25-	69.24	26.87-	27.25	4	2001	0.20	99.65
67.25-	68.24	26.48-	26.86	9	1997	0.45	99.45
66.25-	67.24	26.08-	26.47	15	1988	0.75	99.00
65.25-	66.24	25.69-	26.07	17	1973	0.85	98.26
64.25-	65.24	25.30-	25.68	27	1956	1.34	97.41
63.25-	64.24	24.90-	25.29	44	1929	2.19	96.07
62.25-	63.24	24.51-	24.89	48	1885	2.39	93.87
61.25-	62.24	24.11-	24.50	66	1837	3.29	91.48
60.25-	61.24	23.72-	24.10	95	1771	4.73	88.20
59.25-	60.24	23.33-	23.71	131	1676	6.52	83.47
58.25-	59.24	22.93-	23.32	149	1545	7.42	76.94
57.25-	58.24	22.54-	22.92	171	1396	8.52	69.52
56.25-	57.24	22.15-	22.53	188	1225	9.36	61.01
55.25-	56.24	21.75-	22.14	202	1037	10.06	51.64
54.25-	55.24	21.36-	21.74	194	835	9.66	41.58
53.25-	54.24	20.96-	21.35	154	641	7.67	31.92
52.25-	53.24	20.57-	20.95	147	487	7.32	24.25
51.25-	52.24	20.18-	20.56	134	340	6.67	16.93
50.25-	51.24	19.78-	20.17	87	206	4.33	10.26
49.25-	50.24	19.39-	19.77	49	119	2.44	5.93
48.25-	49.24	19.00-	19.38	33	70	1.64	3.49
47.25-	48.24	18.60-	18.99	22	37	1.10	1.84
46.25-	47.24	18.21-	18.59	6	15	0.30	0.75
45.25-	46.24	17.82-	18.20	3	9	0.15	0.45
44.25-	45.24	17.42-	17.81	2	6	0.10	0.30
43.25-	44.24	17.03-	17.41	1	4	0.05	0.20
42.25-	43.24	16.63-	17.02	3	3	0.15	0.15

31 Upper Thigh Circumference

PERCENTILES



CENTIMETERS		INCHES
67.34	99 TH	26.51
65.84	98 TH	25.92
64.91	97 TH	25.56
63.68	95 TH	25.07
61.86	90 TH	24.35
60.67	85 TH	23.89
59.76	80 TH	23.53
58.99	75 TH	23.23
58.32	70 TH	22.96
57.71	65 TH	22.72
57.14	60 TH	22.50
56.60	55 TH	22.28
56.07	50 TH	22.08
55.55	45 TH	21.87
55.04	40 TH	21.67
54.51	35 TH	21.46
53.97	30 TH	21.25
53.39	25 TH	21.02
52.75	20 TH	20.77
52.02	15 TH	20.48
51.13	10 TH	20.13
49.83	5 TH	19.62
49.00	3 RD	19.29
48.39	2 ND	19.05
47.44	1 ST	18.68

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
56.32	MEAN	22.17
0.09	SE(M)	0.04
4.21	ST DEV	1.66
0.07	SE(SD)	0.03

....

SYMMETRY--BETA I	=	0.32
KURTOSIS--BETA II	=	3.32
COEFFICIENT OF VARIATION	=	7.48

....

SAMPLE SIZE = 2008

Upper Thigh Circumference: Subject stands erect, with his feet slightly apart. The horizontal circumference of the right upper thigh is measured. A steel tape is used, with the tape passing just below the gluteal furrow.

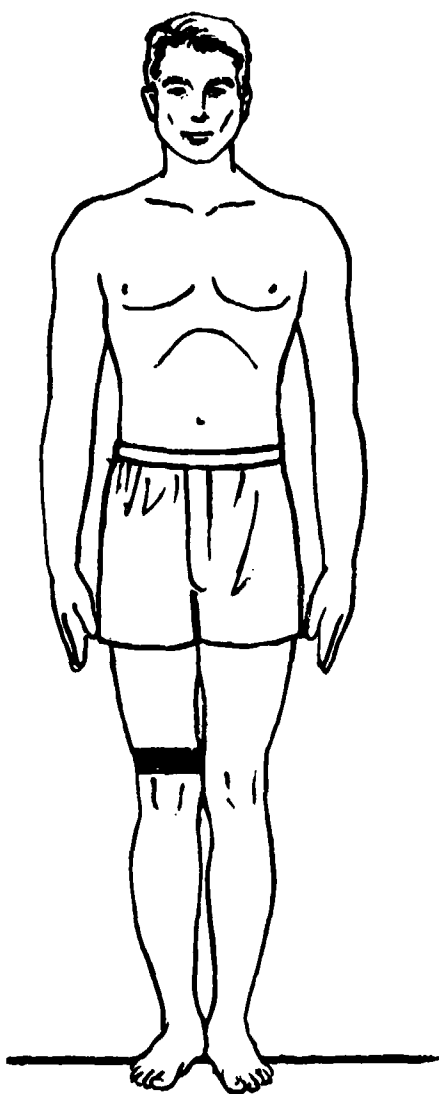
32 Lower Thigh Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
52.75-	53.24	20.77-	20.95	1	2008	0.05	100.00
52.25-	52.74	20.57-	20.76	1	2007	0.05	99.95
51.75-	52.24	20.37-	20.56	1	2006	0.05	99.90
51.25-	51.74	20.18-	20.36	3	2005	0.15	99.85
50.75-	51.24	19.98-	20.17	5	2002	0.25	99.70
50.25-	50.74	19.78-	19.97	2	1997	0.10	99.45
49.75-	50.24	19.59-	19.77	3	1995	0.15	99.35
49.25-	49.74	19.39-	19.58	2	1992	0.10	99.20
48.75-	49.24	19.19-	19.38	6	1990	0.30	99.10
48.25-	48.74	19.00-	19.18	9	1984	0.45	98.80
47.75-	48.24	18.80-	18.99	8	1975	0.40	98.36
47.25-	47.74	18.60-	18.79	10	1967	0.50	97.96
46.75-	47.24	18.41-	18.59	7	1957	0.35	97.46
46.25-	46.74	18.21-	18.40	18	1950	0.90	97.11
45.75-	46.24	18.01-	18.20	21	1932	1.05	96.22
45.25-	45.74	17.82-	18.00	24	1911	1.20	95.17
44.75-	45.24	17.62-	17.81	37	1887	1.84	93.97
44.25-	44.74	17.42-	17.61	38	1850	1.89	92.13
43.75-	44.24	17.22-	17.41	51	1812	2.54	90.24
43.25-	43.74	17.03-	17.21	49	1761	2.44	87.70
42.75-	43.24	16.83-	17.02	79	1712	3.93	85.26
42.25-	42.74	16.63-	16.82	84	1633	4.18	81.32
41.75-	42.24	16.44-	16.62	80	1549	3.98	77.14
41.25-	41.74	16.24-	16.43	112	1469	5.58	73.16
40.75-	41.24	16.04-	16.23	122	1357	6.08	67.58
40.25-	40.74	15.85-	16.03	103	1235	5.13	61.50
39.75-	40.24	15.65-	15.84	144	1132	7.17	56.37
39.25-	39.74	15.45-	15.64	105	988	5.23	49.20
38.75-	39.24	15.26-	15.44	144	883	7.17	43.97
38.25-	38.74	15.06-	15.25	121	739	6.03	36.80
37.75-	38.24	14.86-	15.05	140	618	6.97	30.78
37.25-	37.74	14.67-	14.85	94	478	4.68	23.80
36.75-	37.24	14.47-	14.66	118	384	5.88	19.12
36.25-	36.74	14.27-	14.46	61	266	3.04	13.25
35.75-	36.24	14.07-	14.26	62	205	3.09	10.21
35.25-	35.74	13.88-	14.06	46	143	2.29	7.12
34.75-	35.24	13.68-	13.87	34	97	1.69	4.83
34.25-	34.74	13.48-	13.67	27	63	1.34	3.14
33.75-	34.24	13.29-	13.47	13	36	0.65	1.79
33.25-	33.74	13.09-	13.28	12	23	0.60	1.15
32.75-	33.24	12.89-	13.08	3	11	0.15	0.55
32.25-	32.74	12.70-	12.88	3	8	0.15	0.40
31.75-	32.24	12.50-	12.69	2	5	0.10	0.25
31.25-	31.74	12.30-	12.49	1	3	0.05	0.15
30.75-	31.24	12.11-	12.29	1	2	0.05	0.10
30.25-	30.74	11.91-	12.10	1	1	0.05	0.05

32 Lower Thigh Circumference

PERCENTILES

CENTIMETERS		INCHES
49.09	99 TH	19.33
47.66	98 TH	18.76
46.81	97 TH	18.43
45.73	95 TH	18.00
44.20	90 TH	17.40
43.25	85 TH	17.03
42.54	80 TH	16.75
41.95	75 TH	16.52
41.44	70 TH	16.32
40.98	65 TH	15.14
40.56	60 TH	15.97
40.16	55 TH	15.81
39.78	50 TH	15.66
39.40	45 TH	15.51
39.02	40 TH	15.36
38.64	35 TH	15.21
38.25	30 TH	15.06
37.83	25 TH	14.89
37.37	20 TH	14.71
36.85	15 TH	14.51
36.20	10 TH	14.25
35.28	5 TH	13.89
34.70	3 RD	13.66
34.29	2 ND	13.50
33.66	1 ST	13.25



Lower Thigh Circumference: Subject stands erect, with his feet slightly apart. The horizontal circumference of the right lower thigh is measured. A steel tape is used, with the tape passing above the upper edge of the kneecap (patella).

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
40.05	MEAN	15.77
0.07	SE(M)	0.03
3.20	ST DEV	1.26
0.05	SE(SD)	0.02

....

SYMMETRY--BETA I	=	0.55
KURTOSIS--BETA II	=	3.64
COEFFICIENT OF VARIATION	=	8.00

....

SAMPLE SIZE = 2008

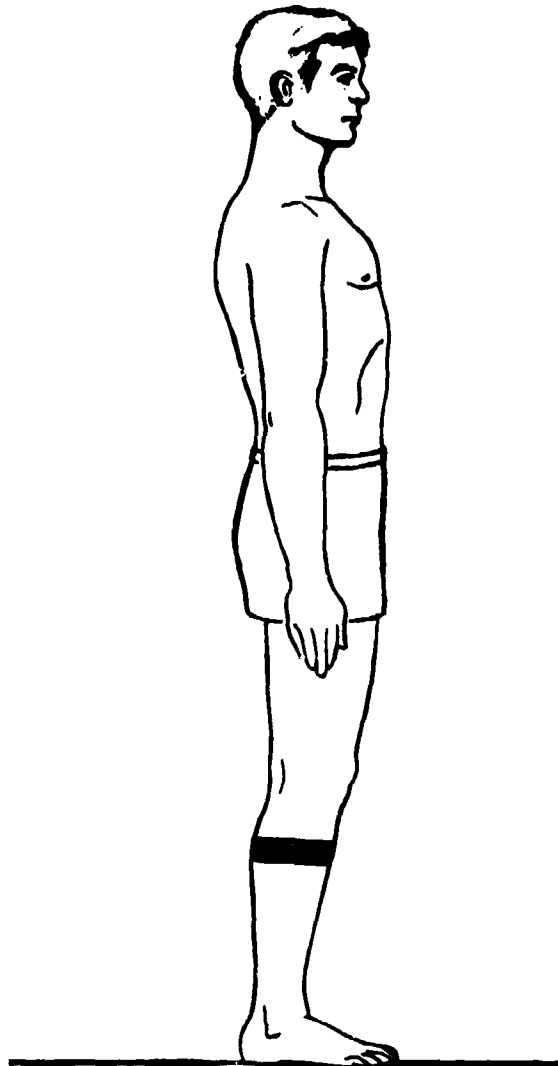
33 Calf Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
45.25-	45.64	17.82-	17.96	1	2008	0.05	100.00
44.85-	45.24	17.66-	17.81	2	2007	0.10	99.95
44.45-	44.84	17.50-	17.65	1	2005	0.05	99.85
44.05-	44.44	17.34-	17.49	4	2004	0.20	99.80
43.65-	44.04	17.19-	17.33	6	2000	0.30	99.60
43.25-	43.64	17.03-	17.18	4	1994	0.20	99.30
42.85-	43.24	16.87-	17.02	8	1990	0.40	99.10
42.45-	42.84	16.71-	16.86	8	1982	0.40	98.71
42.05-	42.44	16.56-	16.70	9	1974	0.45	98.31
41.65-	42.04	16.40-	16.55	19	1965	0.95	97.86
41.25-	41.64	16.24-	16.39	24	1946	1.20	96.91
40.85-	41.24	16.08-	16.23	36	1922	1.79	95.72
40.45-	40.84	15.93-	16.07	40	1886	1.99	93.92
40.05-	40.44	15.77-	15.92	58	1846	2.89	91.93
39.65-	40.04	15.61-	15.76	74	1788	3.69	89.04
39.25-	39.64	15.45-	15.60	80	1714	3.98	85.36
38.85-	39.24	15.30-	15.44	93	1634	4.63	81.37
38.45-	38.84	15.14-	15.29	100	1541	4.98	76.74
38.05-	38.44	14.98-	15.13	105	1441	5.23	71.76
37.65-	38.04	14.82-	14.97	120	1336	5.98	66.53
37.25-	37.64	14.67-	14.81	135	1216	6.72	60.56
36.85-	37.24	14.51-	14.66	175	1081	8.72	53.83
36.45-	36.84	14.35-	14.50	136	906	6.77	45.12
36.05-	36.44	14.19-	14.34	133	770	6.62	38.35
35.65-	36.04	14.04-	14.18	115	637	5.73	31.72
35.25-	35.64	13.88-	14.03	87	522	4.33	26.00
34.85-	35.24	13.72-	13.87	124	435	6.18	21.66
34.45-	34.84	13.56-	13.71	79	311	3.93	15.49
34.05-	34.44	13.41-	13.55	61	232	3.04	11.55
33.65-	34.04	13.25-	13.40	43	171	2.14	8.52
33.25-	33.64	13.09-	13.24	40	128	1.99	6.37
32.85-	33.24	12.93-	13.08	38	88	1.89	4.38
32.45-	32.84	12.78-	12.92	16	50	0.80	2.49
32.05-	32.44	12.62-	12.77	10	34	0.50	1.69
31.65-	32.04	12.46-	12.61	10	24	0.50	1.20
31.25-	31.64	12.30-	12.45	5	14	0.25	0.70
30.85-	31.24	12.15-	12.29	2	9	0.10	0.45
30.45-	30.84	11.99-	12.14	3	7	0.15	0.35
30.05-	30.44	11.83-	11.98	2	4	0.10	0.20
29.65-	30.04	11.67-	11.82	0	2	0.00	0.10
29.25-	29.64	11.52-	11.66	2	2	0.10	0.10

33 Calf Circumference

PERCENTILES

CENTIMETERS		INCHES
43.06	99 TH	16.95
42.25	98 TH	16.63
41.76	97 TH	16.44
41.11	95 TH	16.19
40.16	90 TH	15.81
39.54	85 TH	15.57
39.07	80 TH	15.38
38.66	75 TH	15.22
38.31	70 TH	15.08
37.98	65 TH	14.95
37.68	60 TH	14.83
37.38	55 TH	14.72
37.10	50 TH	14.60
36.81	45 TH	14.49
36.52	40 TH	14.38
36.23	35 TH	14.26
35.91	30 TH	14.14
35.58	25 TH	14.01
35.20	20 TH	13.86
34.77	15 TH	13.69
34.23	10 TH	13.48
33.43	5 TH	13.16
32.91	3 RD	12.96
32.54	2 ND	12.81
31.95	1 ST	12.58



Calf Circumference: Subject stands erect, with his feet slightly apart. The horizontal circumference of the right lower leg is measured at the level of the greatest bulge of the calf muscle. A steel tape is used.

THE SUMMARY STATISTICS

CENTIMETERS		INCHES
37.16	MEAN	14.63
0.05	SE(M)	0.02
2.35	ST DEV	0.92
0.04	SE(SD)	0.01
....		
SYMMETRY--BETA I		= 0.16
KURTOSIS--BETA II		= 3.16
COEFFICIENT OF VARIATION		= 6.32
....		
SAMPLE SIZE		= 2008

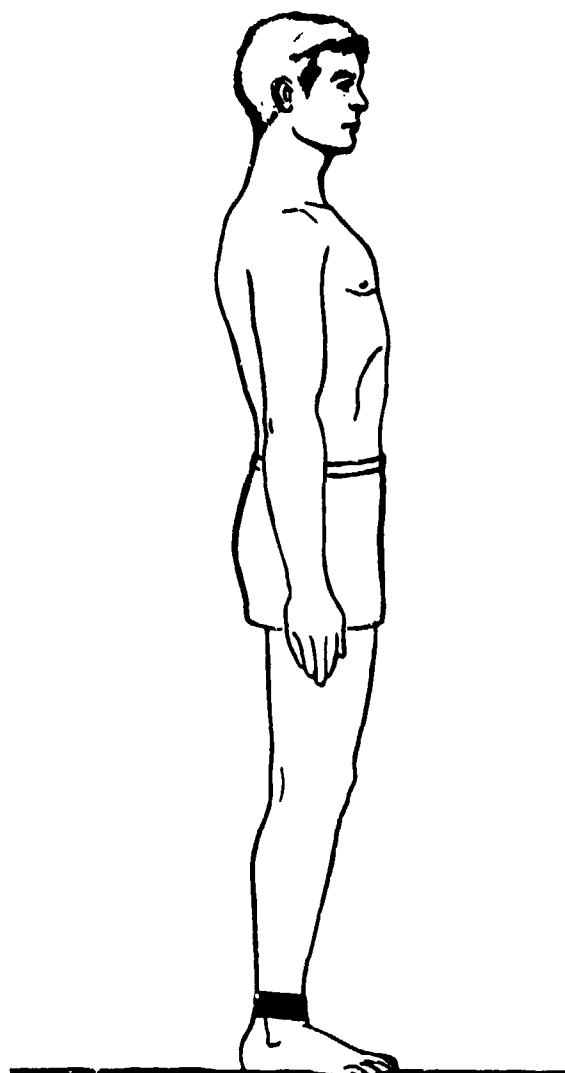
34 Ankle Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
27.85-	28.04	10.96-	11.03	1	2008	0.05	100.00
27.65-	27.84	10.89-	10.95	0	2007	0.00	99.95
27.45-	27.64	10.81-	10.88	0	2007	0.00	99.95
27.25-	27.44	10.73-	10.80	2	2007	0.10	99.95
27.05-	27.24	10.65-	10.72	0	2005	0.00	99.85
26.85-	27.04	10.57-	10.64	2	2005	0.10	99.85
26.65-	26.84	10.49-	10.56	4	2003	0.20	99.75
26.45-	26.64	10.41-	10.48	7	1999	0.35	99.55
26.25-	26.44	10.33-	10.40	3	1992	0.15	99.20
26.05-	26.24	10.26-	10.32	14	1989	0.70	99.05
25.85-	26.04	10.18-	10.25	7	1975	0.35	98.36
25.65-	25.84	10.10-	10.17	7	1968	0.35	98.01
25.45-	25.64	10.02-	10.09	13	1961	0.65	97.66
25.25-	25.44	9.94-	10.01	15	1948	0.75	97.01
25.05-	25.24	9.86-	9.93	20	1933	1.00	96.26
24.85-	25.04	9.78-	9.85	24	1913	1.20	95.27
24.65-	24.84	9.70-	9.77	28	1889	1.39	94.07
24.45-	24.64	9.63-	9.69	35	1861	1.74	92.68
24.25-	24.44	9.55-	9.62	51	1826	2.54	90.94
24.05-	24.24	9.47-	9.54	58	1775	2.89	88.40
23.85-	24.04	9.39-	9.46	43	1717	2.14	85.51
23.65-	23.84	9.31-	9.38	91	1674	4.53	83.37
23.45-	23.64	9.23-	9.30	81	1583	4.03	78.83
23.25-	23.44	9.15-	9.22	115	1502	5.73	74.80
23.05-	23.24	9.07-	9.14	117	1387	5.83	69.07
22.85-	23.04	9.00-	9.06	100	1270	4.98	63.25
22.65-	22.84	8.92-	8.99	130	1170	6.47	58.27
22.45-	22.64	8.84-	8.91	102	1040	5.08	51.79
22.25-	22.44	8.76-	8.83	141	938	7.02	46.71
22.05-	22.24	8.68-	8.75	128	797	6.37	39.69
21.85-	22.04	8.60-	8.67	109	669	5.43	33.32
21.65-	21.84	8.52-	8.59	108	560	5.38	27.89
21.45-	21.64	8.45-	8.51	79	452	3.93	22.51
21.25-	21.44	8.37-	8.44	103	373	5.13	18.58
21.05-	21.24	8.29-	8.36	56	270	2.79	13.45
20.85-	21.04	8.21-	8.28	66	214	3.29	10.66
20.65-	20.84	8.13-	8.20	36	148	1.79	7.37
20.45-	20.64	8.05-	8.12	29	112	1.44	5.58
20.25-	20.44	7.97-	8.04	23	83	1.15	4.13
20.05-	20.24	7.89-	7.96	23	60	1.15	2.99
19.85-	20.04	7.82-	7.88	13	37	0.65	1.84
19.65-	19.84	7.74-	7.81	7	24	0.35	1.20
19.45-	19.64	7.66-	7.73	7	17	0.35	0.85
19.25-	19.44	7.58-	7.65	4	10	0.20	0.50
19.05-	19.24	7.50-	7.57	4	6	0.20	0.30
18.85-	19.04	7.42-	7.49	1	2	0.05	0.10
18.65-	18.84	7.34-	7.41	0	1	0.00	0.05
18.45-	18.64	7.26-	7.33	1	1	0.05	0.05

34 Ankle Circumference

PERCENTILES

CENTIMETERS		INCHES
26.29	99 TH	10.35
25.76	98 TH	10.14
25.43	97 TH	10.01
25.01	95 TH	9.85
24.40	90 TH	9.61
24.02	85 TH	9.46
23.73	80 TH	9.34
23.49	75 TH	9.25
23.27	70 TH	9.16
23.08	65 TH	9.09
22.91	60 TH	9.02
22.74	55 TH	8.95
22.58	50 TH	8.89
22.42	45 TH	8.82
22.25	40 TH	8.76
22.09	35 TH	8.70
21.92	30 TH	8.63
21.74	25 TH	8.56
21.54	20 TH	8.48
21.30	15 TH	8.39
21.01	10 TH	8.27
20.57	5 TH	8.10
20.28	3 RD	7.99
20.07	2 ND	7.90
19.73	1 ST	7.77



Ankle Circumference: Subject stands erect, with his feet slightly apart. The minimum horizontal circumference of the right ankle is measured. A steel tape is used, with the tape passing above the projections of the ankle bones (malleoli).

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
22.66	MEAN	8.92
0.03	SE(M)	0.01
1.34	ST DEV	0.53
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.35
KURTOSIS--BETA II = 3.35
COEFFICIENT OF VARIATION = 5.93

....

SAMPLE SIZE = 2008

35 Vertical Trunk Circumference, Standing

--INTERVALS--		--FREQUENCIES--			
CENTIMETERS	INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FW
192.75- 193.74	75.89- 76.27	1	2008	0.05	100.00
191.75- 192.74	75.49- 75.88	0	2007	0.00	99.95
190.75- 191.74	75.10- 75.48	0	2007	0.00	99.95
189.75- 190.74	74.70- 75.09	1	2007	0.05	99.95
188.75- 189.74	74.31- 74.69	1	2006	0.05	99.90
187.75- 188.74	73.92- 74.30	1	2005	0.05	99.85
186.75- 187.74	73.52- 73.91	3	2004	0.15	99.80
185.75- 186.74	73.13- 73.51	1	2001	0.05	99.65
184.75- 185.74	72.74- 73.12	3	2000	0.15	99.60
183.75- 184.74	72.34- 72.73	2	1997	0.10	99.45
182.75- 183.74	71.95- 72.33	7	1995	0.35	99.35
181.75- 182.74	71.56- 71.94	11	1988	0.55	99.00
180.75- 181.74	71.16- 71.55	11	1977	0.55	98.46
179.75- 180.74	70.77- 71.15	11	1966	0.55	97.91
178.75- 179.74	70.37- 70.76	20	1955	1.00	97.36
177.75- 178.74	69.98- 70.36	20	1935	1.00	96.36
176.75- 177.74	69.59- 69.97	31	1915	1.54	95.37
175.75- 176.74	69.19- 69.58	27	1884	1.34	93.82
174.75- 175.74	68.80- 69.18	34	1857	1.69	92.48
173.75- 174.74	68.41- 68.79	47	1823	2.34	90.79
172.75- 173.74	68.01- 68.40	52	1776	2.59	88.45
171.75- 172.74	67.62- 68.00	76	1724	3.78	85.86
170.75- 171.74	67.22- 67.61	81	1648	4.03	82.07
169.75- 170.74	66.83- 67.21	105	1567	5.23	78.04
168.75- 169.74	66.44- 66.82	71	1462	3.54	72.81
167.75- 168.74	66.04- 66.43	97	1391	4.83	69.27
166.75- 167.74	65.65- 66.03	93	1294	4.63	64.44
165.75- 166.74	65.26- 65.64	96	1201	4.78	59.81
164.75- 165.74	64.86- 65.25	85	1105	4.23	55.03
163.75- 164.74	64.47- 64.85	80	1020	3.98	50.80
162.75- 163.74	64.07- 64.46	107	940	5.33	46.81
161.75- 162.74	63.68- 64.06	112	833	5.58	41.48
160.75- 161.74	63.29- 63.67	106	721	5.28	35.91
159.75- 160.74	62.89- 63.28	100	615	4.98	30.63
158.75- 159.74	62.50- 62.88	74	515	3.69	25.65
157.75- 158.74	62.11- 62.49	93	441	4.63	21.96
156.75- 157.74	61.71- 62.10	71	348	3.54	17.33
155.75- 156.74	61.32- 61.70	74	277	3.69	13.79
154.75- 155.74	60.93- 61.31	44	203	2.19	10.11
153.75- 154.74	60.53- 60.92	42	159	2.09	7.92
152.75- 153.74	60.14- 60.52	30	117	1.49	5.83
151.75- 152.74	59.74- 60.13	25	87	1.25	4.33
150.75- 151.74	59.35- 59.73	22	62	1.10	3.09
149.75- 150.74	58.96- 59.34	18	40	0.90	1.99
148.75- 149.74	58.56- 58.95	7	22	0.35	1.10
147.75- 148.74	58.17- 58.55	8	15	0.40	0.75
146.75- 147.74	57.78- 58.16	3	7	0.15	0.35
145.75- 146.74	57.38- 57.77	2	4	0.10	0.20
144.75- 145.74	56.99- 57.37	1	2	0.05	0.10
143.75- 144.74	56.59- 56.98	1	1	0.05	0.05

35 Vertical Trunk Circumference, Standing

PERCENTILES

CENTIMETERS		INCHES
182.80	99 TH	71.97
180.73	98 TH	71.15
179.39	97 TH	70.63
177.56	95 TH	69.90
174.70	90 TH	68.78
172.76	85 TH	68.02
171.23	80 TH	67.41
169.90	75 TH	66.89
168.72	70 TH	66.42
167.63	65 TH	66.00
166.60	60 TH	65.59
165.61	55 TH	65.20
164.64	50 TH	64.82
163.68	45 TH	64.44
162.71	40 TH	64.06
161.72	35 TH	63.67
160.70	30 TH	63.27
159.60	25 TH	62.83
158.40	20 TH	62.36
157.05	15 TH	61.83
155.40	10 TH	61.18
153.12	5 TH	60.28
151.76	3 RD	59.75
150.82	2 ND	59.38
149.46	1 ST	58.84



Vertical Trunk Circumference, Standing: Subject stands erect, with his feet slightly apart. The vertical circumference of the trunk is measured. A steel tape is used, with the tape passing through the crotch and over the midpoints of the right buttock and right shoulder.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
164.90	MEAN	64.92
0.17	SE(M)	0.07
7.41	ST DEV	2.92
0.12	SE(SD)	0.05

....

SYMMETRY--BETA I = 0.21
KURTOSIS--BETA II = 2.86
COEFFICIENT OF VARIATION = 4.49

....

SAMPLE SIZE = 2008

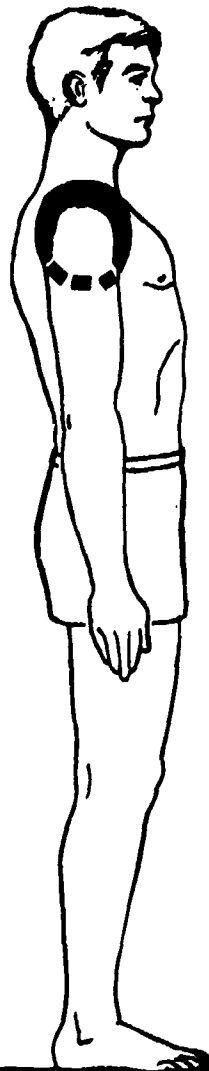
38 Arm Soye Circumference

--INTERVALS--				--FREQUENCIES--		
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ
56.75-	57.24	22.34-	22.53	1	2008	0.05
56.25-	56.74	22.15-	22.33	1	2007	0.05
55.75-	56.24	21.95-	22.14	1	2006	0.05
55.25-	55.74	21.75-	21.94	1	2005	0.05
54.75-	55.24	21.56-	21.74	4	2004	0.20
54.25-	54.74	21.36-	21.55	2	2000	0.10
53.75-	54.24	21.16-	21.35	5	1998	0.25
53.25-	53.74	20.96-	21.15	1	1993	0.05
52.75-	53.24	20.77-	20.95	8	1992	0.40
52.25-	52.74	20.57-	20.76	5	1984	0.25
51.75-	52.24	20.37-	20.56	10	1979	0.50
51.25-	51.74	20.18-	20.36	3	1969	0.15
50.75-	51.24	19.98-	20.17	15	1966	0.75
50.25-	50.74	19.78-	19.97	15	1951	0.75
49.75-	50.24	19.59-	19.77	28	1936	1.39
49.25-	49.74	19.39-	19.58	27	1908	1.34
48.75-	49.24	19.19-	19.38	54	1881	2.69
48.25-	48.74	19.00-	19.18	48	1827	2.39
47.75-	48.24	18.80-	18.99	54	1779	2.69
47.25-	47.74	18.60-	18.79	71	1725	3.54
46.75-	47.24	18.41-	18.59	95	1654	4.73
46.25-	46.74	18.21-	18.40	84	1559	4.18
45.75-	46.24	18.01-	18.20	130	1475	6.47
45.25-	45.74	17.82-	18.00	131	1345	6.52
44.75-	45.24	17.62-	17.81	136	1214	6.77
44.25-	44.74	17.42-	17.61	134	1078	6.67
43.75-	44.24	17.22-	17.41	164	944	8.17
43.25-	43.74	17.03-	17.21	117	780	5.83
42.75-	43.24	16.83-	17.02	157	663	7.82
42.25-	42.74	16.63-	16.82	90	506	4.48
41.75-	42.24	16.44-	16.62	106	416	5.28
41.25-	41.74	16.24-	16.43	84	310	4.18
40.75-	41.24	16.04-	16.23	63	226	3.14
40.25-	40.74	15.85-	16.03	49	163	2.44
39.75-	40.24	15.65-	15.84	45	114	2.24
39.25-	39.74	15.45-	15.64	25	69	1.25
38.75-	39.24	15.26-	15.44	27	44	1.34
38.25-	38.74	15.06-	15.25	8	17	0.40
37.75-	38.24	14.86-	15.05	6	9	0.30
37.25-	37.74	14.67-	14.85	0	3	0.00
36.75-	37.24	14.47-	14.66	1	3	0.05
36.25-	36.74	14.27-	14.46	2	2	0.10

36 Arm Scye Circumference

PERCENTILES

CENTIMETERS		INCHES
52.96	99 TH	20.85
51.55	98 TH	20.30
50.75	97 TH	19.98
49.76	95 TH	19.59
48.41	90 TH	19.06
47.59	85 TH	18.73
46.97	80 TH	18.49
46.46	75 TH	18.29
46.01	70 TH	18.12
45.61	65 TH	17.96
45.23	60 TH	17.81
44.87	55 TH	17.67
44.51	50 TH	17.53
44.16	45 TH	17.39
43.81	40 TH	17.25
43.44	35 TH	17.10
43.06	30 TH	16.95
42.65	25 TH	16.79
42.19	20 TH	16.61
41.66	15 TH	16.40
41.02	10 TH	16.15
40.12	5 TH	15.80
39.59	3 RD	15.59
39.24	2 ND	15.45
38.76	1 ST	15.26



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
44.67	MEAN	17.59
0.07	SE(M)	0.03
2.94	ST DEV	1.16
0.05	SE(SD)	0.02

....

SYMMETRY--BETA I	=	0.48
KURTOSIS--BETA II	=	3.59
COEFFICIENT OF VARIATION	=	6.58
....		
SAMPLE SIZE	=	2008

Arm Scye Circumference: Subject stands erect, with his right arm initially raised and then lowered after the tape is in place. The vertical circumference of the scye (sleeve armhole area) is measured. A steel tape is used, with the tape passing under the right armpit and over the outer point (acromion) of the right shoulder.

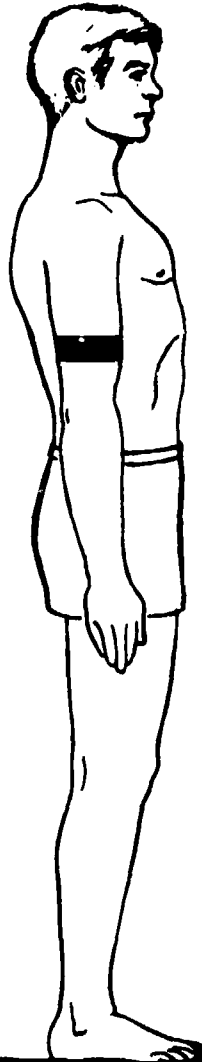
37 Biceps Circumference, Relaxed

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
39.55-	39.94	15.57-	15.72	1	2008	0.05	100.00
39.15-	39.54	15.41-	15.56	0	2007	0.00	99.95
38.75-	39.14	15.26-	15.40	1	2007	0.05	99.95
38.35-	38.74	15.10-	15.25	2	2006	0.10	99.90
37.95-	38.34	14.94-	15.09	0	2004	0.00	99.80
37.55-	37.94	14.78-	14.93	0	2004	0.00	99.80
37.15-	37.54	14.63-	14.77	1	2004	0.05	99.80
36.75-	37.14	14.47-	14.62	7	2003	0.35	99.75
36.35-	36.74	14.31-	14.46	2	1996	0.10	99.40
35.95-	36.34	14.15-	14.30	6	1994	0.30	99.30
35.55-	35.94	14.00-	14.14	8	1988	0.40	99.00
35.15-	35.54	13.84-	13.99	10	1980	0.50	98.61
34.75-	35.14	13.68-	13.83	9	1970	0.45	98.11
34.35-	34.74	13.52-	13.67	20	1961	1.00	97.66
33.95-	34.34	13.37-	13.51	24	1941	1.20	96.66
33.55-	33.94	13.21-	13.36	30	1917	1.49	95.47
33.15-	33.54	13.05-	13.20	35	1887	1.74	93.97
32.75-	33.14	12.89-	13.04	37	1852	1.84	92.23
32.35-	32.74	12.74-	12.88	50	1815	2.49	90.39
31.95-	32.34	12.58-	12.73	90	1765	4.48	87.90
31.55-	31.94	12.42-	12.57	75	1675	3.74	83.42
31.15-	31.54	12.26-	12.41	92	1600	4.58	79.68
30.75-	31.14	12.11-	12.25	124	1508	6.18	75.10
30.35-	30.74	11.95-	12.10	119	1384	5.93	68.92
29.95-	30.34	11.79-	11.94	148	1265	7.37	63.00
29.55-	29.94	11.63-	11.78	128	1117	6.37	55.63
29.15-	29.54	11.48-	11.62	120	989	5.98	49.25
28.75-	29.14	11.32-	11.47	150	869	7.47	43.28
28.35-	28.74	11.16-	11.31	117	719	5.83	35.81
27.95-	28.34	11.00-	11.15	121	602	6.03	29.98
27.55-	27.94	10.85-	10.99	110	481	5.48	23.95
27.15-	27.54	10.69-	10.84	84	371	4.18	18.48
26.75-	27.14	10.53-	10.68	90	287	4.48	14.29
26.35-	26.74	10.37-	10.52	64	197	3.19	9.81
25.95-	26.34	10.22-	10.36	39	133	1.94	6.62
25.55-	25.94	10.06-	10.21	35	94	1.74	4.68
25.15-	25.54	9.90-	10.05	25	59	1.25	2.94
24.75-	25.14	9.74-	9.89	13	34	0.65	1.69
24.35-	24.74	9.59-	9.73	11	21	0.55	1.05
23.95-	24.34	9.43-	9.58	5	10	0.25	0.50
23.55-	23.94	9.27-	9.42	3	5	0.15	0.25
23.15-	23.54	9.11-	9.26	1	2	0.05	0.10
22.75-	23.14	8.96-	9.10	1	1	0.05	0.05

37 Biceps Circumference, Relaxed

PERCENTILES

CENTIMETERS		INCHES
35.96	99 TH	14.16
35.04	98 TH	13.79
34.49	97 TH	13.58
33.78	95 TH	13.30
32.75	90 TH	12.89
32.10	85 TH	12.64
31.60	80 TH	12.44
31.18	75 TH	12.27
30.81	70 TH	12.13
30.47	65 TH	12.00
30.16	60 TH	11.87
29.86	55 TH	11.76
29.56	50 TH	11.64
29.27	45 TH	11.53
28.98	40 TH	11.41
28.69	35 TH	11.29
28.38	30 TH	11.17
28.04	25 TH	11.04
27.68	20 TH	10.90
27.26	15 TH	10.73
26.74	10 TH	10.53
26.00	5 TH	10.24
25.55	3 RD	10.06
25.22	2 ND	9.93
24.74	1 ST	9.74



THE SUMMARY STATISTICS

CENTIMETERS		INCHES
29.69	MEAN	11.69
0.05	SE(M)	0.02
2.37	ST DEV	0.93
0.04	SE(SD)	0.01
....		
SYMMETRY--BETA I		= 0.36
KURTOSIS--BETA II		= 3.32
COEFFICIENT OF VARIATION		= 7.98
....		
SAMPLE SIZE		= 2008

Biceps Circumference, Relaxed:
Subject stands erect, with his right arm held slightly away from the body. The circumference of the right upper arm is measured at the level of the biceps muscle, midway between the shoulder and the elbow. A steel tape is used.

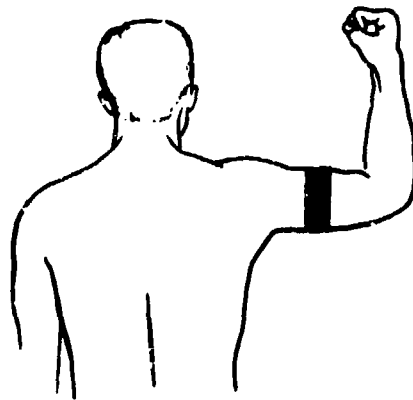
38 Biceps Circumference, Flexed

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
42.35-	42.74	16.67-	16.82	2	2008	0.10	100.00
41.95-	42.34	16.52-	16.66	0	2006	0.00	99.90
41.55-	41.94	16.36-	16.51	0	2006	0.00	99.90
41.15-	41.54	16.20-	16.35	0	2006	0.00	99.90
40.75-	41.14	16.04-	16.19	1	2006	0.05	99.90
40.35-	40.74	15.89-	16.03	0	2005	0.00	99.85
39.95-	40.34	15.73-	15.88	4	2005	0.20	99.85
39.55-	39.94	15.57-	15.72	0	2001	0.00	99.65
39.15-	39.54	15.41-	15.56	4	2001	0.20	99.65
38.75-	39.14	15.26-	15.40	7	1997	0.35	99.45
38.35-	38.74	15.10-	15.25	7	1990	0.35	99.10
37.95-	38.34	14.94-	15.09	13	1983	0.65	98.75
37.55-	37.94	14.78-	14.93	12	1970	0.60	98.11
37.15-	37.54	14.63-	14.77	16	1958	0.80	97.51
36.75-	37.14	14.47-	14.62	26	1942	1.29	96.71
36.35-	36.74	14.31-	14.46	32	1916	1.59	95.42
35.95-	36.34	14.15-	14.30	37	1884	1.84	93.82
35.55-	35.94	14.00-	14.14	38	1847	1.89	91.98
35.15-	35.54	13.84-	13.99	55	1809	2.74	90.09
34.75-	35.14	13.68-	13.83	58	1754	2.89	87.35
34.35-	34.74	13.52-	13.67	100	1696	4.98	84.46
33.95-	34.34	13.37-	13.51	95	1596	4.73	79.48
33.55-	33.94	13.21-	13.36	113	1501	5.63	74.75
33.15-	33.54	13.05-	13.20	97	1388	4.83	69.12
32.75-	33.14	12.89-	13.04	139	1291	6.92	64.29
32.35-	32.74	12.74-	12.88	123	1152	6.13	57.37
31.95-	32.34	12.58-	12.73	138	1029	6.87	51.25
31.55-	31.94	12.42-	12.57	141	891	7.02	44.37
31.15-	31.54	12.26-	12.41	127	750	6.32	37.35
30.75-	31.14	12.11-	12.25	119	623	5.93	31.03
30.35-	30.74	11.95-	12.10	112	504	5.58	25.10
29.95-	30.34	11.79-	11.94	114	392	5.68	19.52
29.55-	29.94	11.63-	11.78	66	278	3.29	13.84
29.15-	29.54	11.48-	11.62	59	212	2.94	10.56
28.75-	29.14	11.32-	11.47	47	153	2.34	7.62
28.35-	28.74	11.16-	11.31	30	106	1.49	5.28
27.95-	28.34	11.00-	11.15	29	76	1.44	3.78
27.55-	27.94	10.85-	10.99	16	47	0.80	2.34
27.15-	27.54	10.69-	10.84	18	31	0.90	1.54
26.75-	27.14	10.53-	10.68	5	13	0.25	0.65
26.35-	26.74	10.37-	10.52	1	8	0.05	0.40
25.95-	26.34	10.22-	10.36	3	7	0.15	0.35
25.55-	25.94	10.06-	10.21	0	4	0.00	0.20
25.15-	25.54	9.90-	10.05	3	4	0.15	0.20
24.75-	25.14	9.74-	9.89	0	1	0.00	0.05
24.35-	24.74	9.59-	9.73	1	1	0.05	0.05

38 Biceps Circumference, Flexed

PERCENTILES

CENTIMETERS		INCHES
38.67	99 TH	15.23
37.82	98 TH	14.89
37.30	97 TH	14.68
36.60	95 TH	14.41
35.57	90 TH	14.00
34.90	85 TH	13.74
34.38	80 TH	13.54
33.95	75 TH	13.37
33.57	70 TH	13.22
33.22	65 TH	13.08
32.90	60 TH	12.95
32.59	55 TH	12.83
32.29	50 TH	12.71
32.00	45 TH	12.60
31.70	40 TH	12.48
31.40	35 TH	12.36
31.09	30 TH	12.24
30.76	25 TH	12.11
30.39	20 TH	11.96
29.97	15 TH	11.80
29.44	10 TH	11.59
28.68	5 TH	11.29
28.19	3 RD	11.10
27.83	2 ND	10.95
27.26	1 ST	10.73



Biceps Circumference, Flexed:
 Subject stands erect, with his right arm bent, fist clenched, and biceps muscle flexed. The maximum circumference of the right upper arm is measured at the greatest bulge of the flexed biceps muscle. A steel tape is used.

THE SUMMARY STATISTICS

CENTIMETERS		INCHES
32.42	MEAN	12.77
0.05	SE(M)	0.02
2.42	ST DEV	0.95
0.04	SE(SD)	0.02
....		
SYMMETRY--BETA 1 =		0.30
KURTOSIS--BETA 11 =		3.31
COEFFICIENT OF VARIATION =		7.45
....		
SAMPLE SIZE =		2008

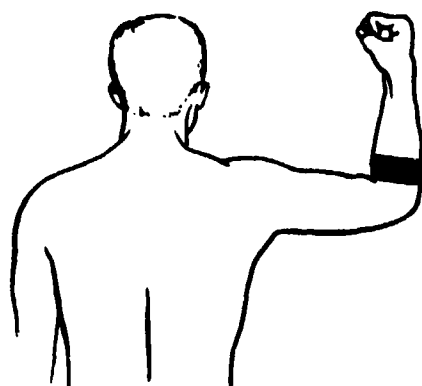
39 Forearm Circumference, Flexed

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
36.85-	37.14	14.51-	14.62	1	2008	0.05	100.00
36.55-	36.84	14.39-	14.50	2	2007	0.10	99.95
36.25-	36.54	14.27-	14.38	0	2005	0.00	99.85
35.95-	36.24	14.15-	14.26	1	2005	0.05	99.85
35.65-	35.94	14.04-	14.14	1	2004	0.05	99.80
35.35-	35.64	13.92-	14.03	3	2003	0.15	99.75
35.05-	35.34	13.80-	13.91	0	2000	0.00	99.60
34.75-	35.04	13.68-	13.79	3	2000	0.15	99.60
34.45-	34.74	13.56-	13.67	3	1997	0.15	99.45
34.15-	34.44	13.45-	13.55	4	1994	0.20	99.30
33.85-	34.14	13.33-	13.44	9	1990	0.45	99.10
33.55-	33.84	13.21-	13.32	7	1981	0.35	98.66
33.25-	33.54	13.09-	13.20	15	1974	0.75	98.31
32.95-	33.24	12.97-	13.08	17	1959	0.85	97.56
32.65-	32.94	12.85-	12.96	27	1942	1.34	96.71
32.35-	32.64	12.74-	12.84	33	1915	1.64	95.37
32.05-	32.34	12.62-	12.73	48	1882	2.39	93.73
31.75-	32.04	12.50-	12.61	48	1834	2.39	91.33
31.45-	31.74	12.38-	12.49	57	1786	2.84	88.94
31.15-	31.44	12.26-	12.37	78	1729	3.88	86.11
30.85-	31.14	12.15-	12.25	80	1651	3.98	82.22
30.55-	30.84	12.03-	12.14	103	1571	5.13	78.24
30.25-	30.54	11.91-	12.02	97	1468	4.83	73.11
29.95-	30.24	11.79-	11.90	138	1371	6.87	68.28
29.65-	29.94	11.67-	11.78	107	1233	5.33	61.40
29.35-	29.64	11.56-	11.66	111	1126	5.53	56.08
29.05-	29.34	11.44-	11.55	151	1015	7.52	50.55
28.75-	29.04	11.32-	11.43	104	864	5.18	43.03
28.45-	28.74	11.20-	11.31	112	760	5.58	37.85
28.15-	28.44	11.08-	11.19	109	648	5.43	32.27
27.85-	28.14	10.96-	11.07	85	539	4.23	26.84
27.55-	27.84	10.85-	10.95	124	454	6.18	22.61
27.25-	27.54	10.73-	10.84	83	330	4.13	16.43
26.95-	27.24	10.61-	10.72	73	247	3.64	12.30
26.65-	26.94	10.49-	10.60	50	174	2.49	8.67
26.35-	26.64	10.37-	10.48	38	124	1.89	6.18
26.05-	26.34	10.26-	10.36	43	86	2.14	4.28
25.75-	26.04	10.14-	10.25	13	43	0.65	2.14
25.45-	25.74	10.02-	10.13	7	30	0.35	1.49
25.15-	25.44	9.90-	10.01	11	23	0.55	1.15
24.85-	25.14	9.78-	9.89	7	12	0.35	0.60
24.55-	24.84	9.67-	9.77	2	5	0.10	0.25
24.25-	24.54	9.55-	9.66	0	3	0.00	0.15
23.95-	24.24	9.43-	9.54	0	3	0.00	0.15
23.65-	23.94	9.31-	9.42	1	3	0.05	0.15
23.35-	23.64	9.19-	9.30	1	2	0.05	0.10
23.05-	23.34	9.07-	9.18	1	1	0.05	0.05

38 Forearm Circumference, Flexed

PERCENTILES

CENTIMETERS		INCHES
34.02	99 TH	13.39
33.46	98 TH	13.17
33.10	97 TH	13.03
32.61	95 TH	12.84
31.87	90 TH	12.55
31.37	85 TH	12.35
30.98	80 TH	12.20
30.64	75 TH	12.06
30.35	70 TH	11.95
30.08	65 TH	11.84
29.82	60 TH	11.74
29.57	55 TH	11.64
29.33	50 TH	11.55
29.10	45 TH	11.45
28.86	40 TH	11.36
28.61	35 TH	11.27
28.36	30 TH	11.17
28.09	25 TH	11.06
27.79	20 TH	10.94
27.46	15 TH	10.81
27.05	10 TH	10.65
26.47	5 TH	10.42
26.11	3 RD	10.28
25.86	2 ND	10.18
25.48	1 ST	10.03



Forearm Circumference, Flexed:
Subject stands erect, with his right arm bent, fist clenched, and arm muscles flexed. The maximum circumference of the right forearm is measured at the greatest bulge of the flexed forearm muscles. A steel tape is used.

THE SUMMARY STATISTICS

CENTIMETERS		INCHES
29.41	MEAN	11.58
0.04	SE(M)	0.02
1.89	ST DEV	0.74
0.03	SE(SD)	0.01

.....
 SYMMETRY--BETA I = 0.26
 KURTOSIS--BETA II = 3.15
 COEFFICIENT OF VARIATION = 6.41

 SAMPLE SIZE = 2008

40 Wrist Circumference

--INTERVALS--

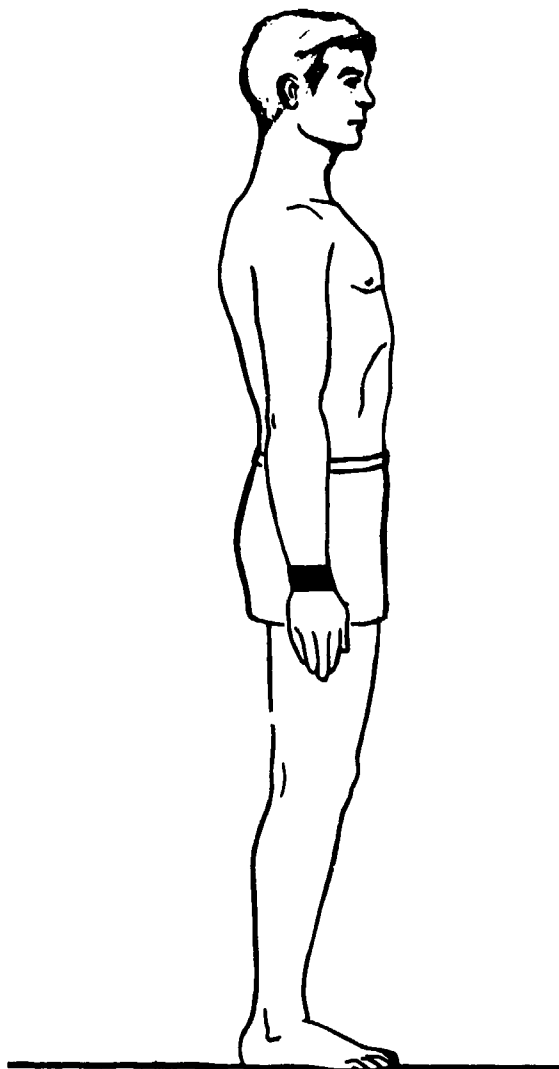
--FREQUENCIES--

CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
19.55-	19.64	7.70-	7.73	1	2008	0.05	100.00
19.45-	19.54	7.66-	7.69	0	2007	0.00	99.95
19.35-	19.44	7.62-	7.65	2	2007	0.10	99.95
19.25-	19.34	7.58-	7.61	2	2005	0.10	99.85
19.15-	19.24	7.54-	7.57	8	2003	0.40	99.75
19.05-	19.14	7.50-	7.53	2	1995	0.10	99.35
18.95-	19.04	7.46-	7.49	5	1993	0.25	99.25
18.85-	18.94	7.42-	7.45	13	1988	0.65	99.00
18.75-	18.84	7.38-	7.41	12	1975	0.60	98.36
18.65-	18.74	7.34-	7.37	15	1963	0.75	97.76
18.55-	18.64	7.30-	7.33	14	1948	0.70	97.01
18.45-	18.54	7.26-	7.29	16	1934	0.80	96.31
18.35-	18.44	7.22-	7.25	17	1918	0.85	95.52
18.25-	18.34	7.19-	7.21	32	1901	1.59	94.67
18.15-	18.24	7.15-	7.18	26	1869	1.29	93.08
18.05-	18.14	7.11-	7.14	31	1843	1.54	91.78
17.95-	18.04	7.07-	7.10	56	1812	2.79	90.24
17.85-	17.94	7.03-	7.06	31	1756	1.54	87.45
17.75-	17.84	6.99-	7.02	83	1725	4.13	85.91
17.65-	17.74	6.95-	6.98	64	1642	3.19	81.77
17.55-	17.64	6.91-	6.94	59	1578	2.94	78.59
17.45-	17.54	6.87-	6.90	71	1519	3.54	75.65
17.35-	17.44	6.83-	6.86	85	1448	4.23	72.11
17.25-	17.34	6.79-	6.82	120	1363	5.98	67.88
17.15-	17.24	6.75-	6.78	107	1243	5.33	61.90
17.05-	17.14	6.71-	6.74	67	1136	3.34	56.57
16.95-	17.04	6.67-	6.70	111	1069	5.53	53.24
16.85-	16.94	6.63-	6.66	72	958	3.59	47.71
16.75-	16.84	6.59-	6.62	98	886	4.88	44.12
16.65-	16.74	6.56-	6.58	100	788	4.98	39.24
16.55-	16.64	6.52-	6.55	80	688	3.98	34.26
16.45-	16.54	6.48-	6.51	87	608	4.33	30.28
16.35-	16.44	6.44-	6.47	83	521	4.13	25.95
16.25-	16.34	6.40-	6.43	108	438	5.38	21.81
16.15-	16.24	6.36-	6.39	51	330	2.54	16.43
16.05-	16.14	6.32-	6.35	40	279	1.99	13.89
15.95-	16.04	6.28-	6.31	53	239	2.64	11.90
15.85-	15.94	6.24-	6.27	33	186	1.64	9.26
15.75-	15.84	6.20-	6.23	48	153	2.39	7.62
15.65-	15.74	6.16-	6.19	31	105	1.54	5.23
15.55-	15.64	6.12-	6.15	14	74	0.70	3.69
15.45-	15.54	6.08-	6.11	11	60	0.55	2.99
15.35-	15.44	6.04-	6.07	16	49	0.80	2.44
15.25-	15.34	6.00-	6.03	17	33	0.85	1.64
15.15-	15.24	5.96-	5.99	7	16	0.35	0.80
15.05-	15.14	5.93-	5.95	6	9	0.30	0.45
14.95-	15.04	5.89-	5.92	2	3	0.10	0.15
14.85-	14.94	5.85-	5.88	0	1	0.00	0.05
14.75-	14.84	5.81-	5.84	0	1	0.00	0.05
14.65-	14.74	5.77-	5.80	1	1	0.05	0.05

40 Wrist Circumference

PERCENTILES

CENTIMETERS		INCHES
18.99	99 TH	7.48
18.75	98 TH	7.38
18.60	97 TH	7.32
18.39	95 TH	7.24
18.07	90 TH	7.12
17.86	85 TH	7.03
17.69	80 TH	6.96
17.54	75 TH	6.91
17.42	70 TH	6.86
17.30	65 TH	6.81
17.19	60 TH	6.77
17.08	55 TH	6.72
16.98	50 TH	6.68
16.87	45 TH	6.64
16.77	40 TH	6.60
16.67	35 TH	6.56
16.56	30 TH	6.52
16.44	25 TH	6.47
16.31	20 TH	6.42
16.17	15 TH	6.36
15.98	10 TH	6.29
15.72	5 TH	6.19
15.56	3 RD	6.12
15.44	2 ND	6.08
15.25	1 ST	6.00



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
17.01	MEAN	6.70
0.02	SE(M)	0.01
0.81	ST DEV	0.32
0.01	SE(SD)	0.01

....

SYMMETRY--BETA I	=	0.19
KURTOSIS--BETA II	=	2.84
COEFFICIENT OF VARIATION	=	4.74

....

SAMPLE SIZE = 2008

Wrist Circumference: Subject stands erect, with his right arm held slightly away from the body. The minimum circumference of the right wrist is measured. A steel tape is used.

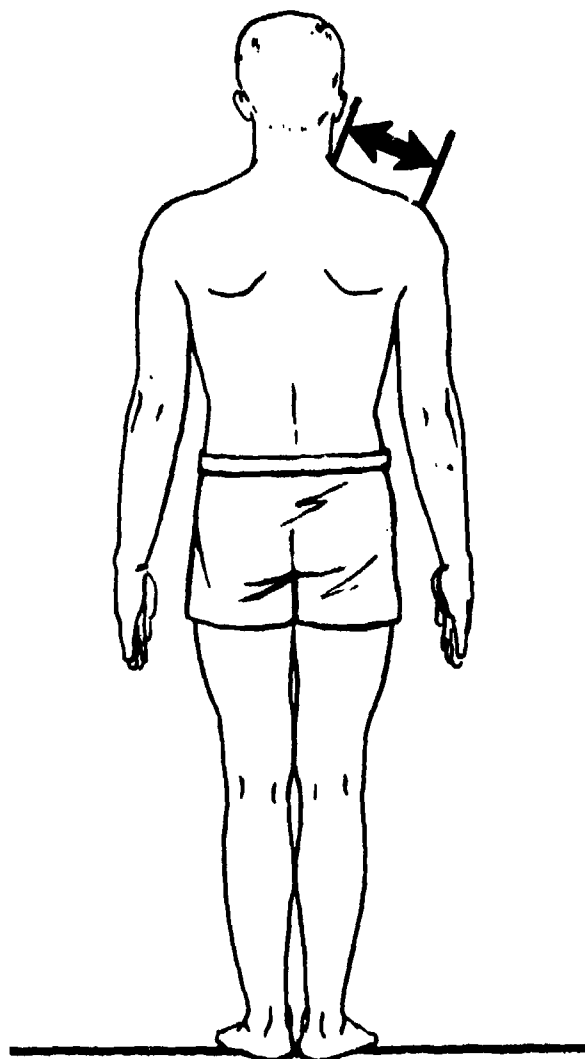
41 Shoulder Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
20.65-	20.94	8.13-	8.24	3	2008	0.15	100.00
20.35-	20.64	8.01-	8.12	3	2005	0.15	99.85
20.05-	20.34	7.89-	8.00	3	2002	0.15	99.70
19.75-	20.04	7.78-	7.88	4	1999	0.20	99.55
19.45-	19.74	7.66-	7.77	8	1995	0.40	99.35
19.15-	19.44	7.54-	7.65	32	1987	1.59	98.95
18.85-	19.14	7.42-	7.53	46	1955	2.29	97.36
18.55-	18.84	7.30-	7.41	18	1909	0.90	95.07
18.25-	18.54	7.19-	7.29	58	1891	2.89	94.17
17.95-	18.24	7.07-	7.18	123	1833	6.13	91.28
17.65-	17.94	6.95-	7.06	82	1710	4.08	85.16
17.35-	17.64	6.83-	6.94	86	1628	4.28	81.08
17.05-	17.34	6.71-	6.82	213	1542	10.61	76.79
16.75-	17.04	6.59-	6.70	134	1329	6.67	66.19
16.45-	16.74	6.48-	6.58	144	1195	7.17	59.51
16.15-	16.44	6.36-	6.47	236	1051	11.75	52.34
15.85-	16.14	6.24-	6.35	159	815	7.92	40.59
15.55-	15.84	6.12-	6.23	164	656	8.17	32.67
15.25-	15.54	6.00-	6.11	110	492	5.48	24.50
14.95-	15.24	5.89-	5.99	112	382	5.58	19.02
14.65-	14.94	5.77-	5.88	83	270	4.13	13.45
14.35-	14.64	5.65-	5.76	45	187	2.24	9.31
14.05-	14.34	5.53-	5.64	56	142	2.79	7.07
13.75-	14.04	5.41-	5.52	22	86	1.10	4.28
13.45-	13.74	5.30-	5.40	15	64	0.75	3.19
13.15-	13.44	5.18-	5.29	26	49	1.29	2.44
12.85-	13.14	5.06-	5.17	5	23	0.25	1.15
12.55-	12.84	4.94-	5.05	7	18	0.35	0.90
12.25-	12.54	4.82-	4.93	1	11	0.05	0.55
11.95-	12.24	4.70-	4.81	3	10	0.15	0.50
11.65-	11.94	4.59-	4.69	1	7	0.05	0.35
11.35-	11.64	4.47-	4.58	2	6	0.10	0.30
11.05-	11.34	4.35-	4.46	1	4	0.05	0.20
10.75-	11.04	4.23-	4.34	1	3	0.05	0.15
10.45-	10.74	4.11-	4.22	1	2	0.05	0.10
10.15-	10.44	4.00-	4.10	1	1	0.05	0.05

41 Shoulder Length

PERCENTILES

CENTIMETERS		INCHES
19.54	99 TH	7.69
19.25	98 TH	7.58
19.05	97 TH	7.50
18.75	95 TH	7.38
18.25	90 TH	7.18
17.90	85 TH	7.05
17.62	80 TH	6.94
17.38	75 TH	6.84
17.16	70 TH	6.76
16.97	65 TH	6.68
16.78	60 TH	6.61
16.61	55 TH	6.54
16.43	50 TH	6.47
16.26	45 TH	6.40
16.09	40 TH	6.33
15.91	35 TH	6.26
15.72	30 TH	6.19
15.52	25 TH	6.11
15.29	20 TH	6.02
15.03	15 TH	5.92
14.68	10 TH	5.78
14.13	5 TH	5.56
13.74	3 RD	5.41
13.43	2 ND	5.29
12.89	1 ST	5.07



Shoulder Length: Subject stands erect, with head level. Shoulder length is measured as the distance along the upper surface of the right shoulder, from the base of the neck to the outer point (acromion) of the shoulder. A steel tape is used.

THE SUMMARY STATISTICS

CENTIMETERS		INCHES
16.43	MEAN	6.47
0.03	SE(M)	0.01
1.40	ST DEV	0.55
0.02	SE(SD)	0.01

.....
 SYMMETRY--BETA I = -0.18
 KURTOSIS--BETA II = 3.53
 COEFFICIENT OF VARIATION = 8.53

 SAMPLE SIZE = 2008

42 Interscye Breadth

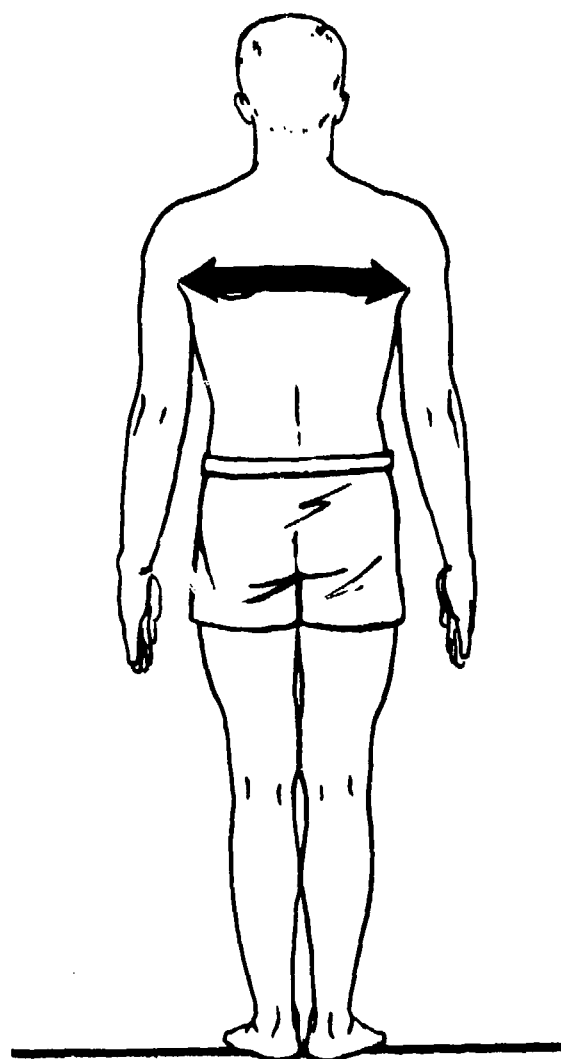
--INTERVALS--

--FREQUENCIES--

CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
52.75-	53.24	20.77-	20.95	1	2008	0.05	100.00
52.25-	52.74	20.57-	20.76	0	2007	0.00	99.95
51.75-	52.24	20.37-	20.56	0	2007	0.00	99.95
51.25-	51.74	20.18-	20.36	0	2007	0.00	99.95
50.75-	51.24	19.98-	20.17	0	2007	0.00	99.95
50.25-	50.74	19.78-	19.97	0	2007	0.00	99.95
49.75-	50.24	19.59-	19.77	1	2007	0.05	99.95
49.25-	49.74	19.39-	19.58	1	2006	0.05	99.90
48.75-	49.24	19.19-	19.38	1	2005	0.05	99.85
48.25-	48.74	19.00-	19.18	0	2004	0.00	99.80
47.75-	48.24	18.80-	18.99	1	2004	0.05	99.80
47.25-	47.74	18.60-	18.79	0	2003	0.00	99.75
46.75-	47.24	18.41-	18.59	2	2003	0.10	99.75
46.25-	46.74	18.21-	18.40	7	2001	0.35	99.65
45.75-	46.24	18.01-	18.20	8	1994	0.40	99.30
45.25-	45.74	17.82-	18.00	13	1986	0.65	98.90
44.75-	45.24	17.62-	17.81	23	1973	1.15	98.26
44.25-	44.74	17.42-	17.61	23	1950	1.15	97.11
43.75-	44.24	17.22-	17.41	27	1927	1.34	95.97
43.25-	43.74	17.03-	17.21	30	1900	1.49	94.62
42.75-	43.24	16.83-	17.02	50	1870	2.49	93.13
42.25-	42.74	16.63-	16.82	55	1820	2.74	90.64
41.75-	42.24	16.44-	16.62	84	1765	4.18	87.90
41.25-	41.74	16.24-	16.43	62	1681	3.09	83.72
40.75-	41.24	16.04-	16.23	78	1619	3.88	80.63
40.25-	40.74	15.85-	16.03	108	1541	5.38	76.74
39.75-	40.24	15.65-	15.84	138	1433	6.87	71.36
39.25-	39.74	15.45-	15.64	132	1295	6.57	64.49
38.75-	39.24	15.26-	15.44	154	1163	7.67	57.92
38.25-	38.74	15.06-	15.25	129	1009	6.42	50.25
37.75-	38.24	14.86-	15.05	150	880	7.47	43.82
37.25-	37.74	14.67-	14.85	94	730	4.68	36.35
36.75-	37.24	14.47-	14.66	137	636	6.82	31.67
36.25-	36.74	14.27-	14.46	70	499	3.49	24.85
35.75-	36.24	14.07-	14.26	105	429	5.23	21.36
35.25-	35.74	13.88-	14.06	60	324	2.99	16.14
34.75-	35.24	13.68-	13.87	66	264	3.29	13.15
34.25-	34.74	13.48-	13.67	43	198	2.14	9.86
33.75-	34.24	13.29-	13.47	48	155	2.39	7.72
33.25-	33.74	13.09-	13.28	28	107	1.39	5.33
32.75-	33.24	12.89-	13.08	40	79	1.99	3.93
32.25-	32.74	12.70-	12.88	10	39	0.50	1.94
31.75-	32.24	12.50-	12.69	13	29	0.65	1.44
31.25-	31.74	12.30-	12.49	10	16	0.50	0.80
30.75-	31.24	12.11-	12.29	0	6	0.00	0.30
30.25-	30.74	11.91-	12.10	1	6	0.05	0.30
29.75-	30.24	11.71-	11.90	3	5	0.15	0.25
29.25-	29.74	11.52-	11.70	2	2	0.10	0.10

PERCENTILES

CENTIMETERS		INCHES
46.00	99 TH	18.11
45.11	98 TH	17.76
44.55	97 TH	17.54
43.79	95 TH	17.24
42.64	90 TH	16.79
41.87	85 TH	16.48
41.26	80 TH	16.25
40.74	75 TH	16.04
40.28	70 TH	15.86
39.85	65 TH	15.69
39.45	60 TH	15.53
39.06	55 TH	15.38
38.67	50 TH	15.23
38.29	45 TH	15.07
37.90	40 TH	14.92
37.51	35 TH	14.77
37.09	30 TH	14.60
36.64	25 TH	14.42
36.14	20 TH	14.23
35.56	15 TH	14.00
34.84	10 TH	13.72
33.79	5 TH	13.30
33.12	3 RD	13.04
32.63	2 ND	12.85
31.88	1 ST	12.55



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
38.72	MEAN	15.25
0.07	SE(M)	0.03
3.04	ST DEV	1.20
0.05	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.12

KURTOSIS--BETA II = 3.18

COEFFICIENT OF VARIATION = 7.85

....

SAMPLE SIZE = 2008

Interscye Breadth: Subject stands erect, with his arms at his sides. Interscye breadth is measured as the horizontal distance across the surface of the back between the upper ends of the armpit creases (scye points). A steel tape is used.

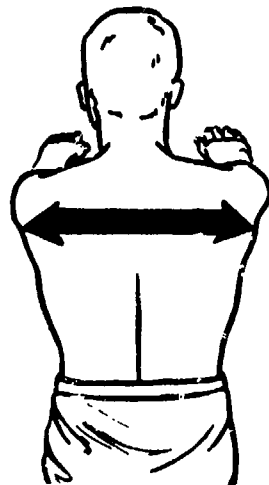
43 Interscye, Maximum

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
64.25-	64.74	25.30-	25.48	1	2007	0.05	99.95
63.75-	64.24	25.10-	25.29	0	2006	0.00	99.90
63.25-	63.74	24.90-	25.09	0	2006	0.00	99.90
62.75-	63.24	24.70-	24.89	1	2006	0.05	99.90
62.25-	62.74	24.51-	24.69	2	2005	0.10	99.85
61.75-	62.24	24.31-	24.50	1	2003	0.05	99.75
61.25-	61.74	24.11-	24.30	1	2002	0.05	99.70
60.75-	61.24	23.92-	24.10	1	2001	0.05	99.65
60.25-	60.74	23.72-	23.91	6	2000	0.30	99.60
59.75-	60.24	23.52-	23.71	6	1994	0.30	99.30
59.25-	59.74	23.33-	23.51	14	1988	0.70	99.00
58.75-	59.24	23.13-	23.32	11	1974	0.55	98.31
58.25-	58.74	22.93-	23.12	17	1963	0.85	97.76
57.75-	58.24	22.74-	22.92	21	1946	1.05	96.91
57.25-	57.74	22.54-	22.73	30	1925	1.49	95.87
56.75-	57.24	22.34-	22.53	36	1895	1.79	94.37
56.25-	56.74	22.15-	22.33	37	1859	1.84	92.58
55.75-	56.24	21.95-	22.14	62	1822	3.09	90.74
55.25-	55.74	21.75-	21.94	60	1760	2.99	87.65
54.75-	55.24	21.56-	21.74	74	1700	3.69	84.66
54.25-	54.74	21.36-	21.55	72	1626	3.59	80.98
53.75-	54.24	21.16-	21.35	101	1554	5.03	77.39
53.25-	53.74	20.96-	21.15	95	1453	4.73	72.36
52.75-	53.24	20.77-	20.95	114	1358	5.68	67.63
52.25-	52.74	20.57-	20.76	113	1244	5.63	61.95
51.75-	52.24	20.37-	20.56	133	1131	6.62	56.32
51.25-	51.74	20.18-	20.36	110	998	5.48	49.70
50.75-	51.24	19.98-	20.17	143	888	7.12	44.22
50.25-	50.74	19.78-	19.97	103	745	5.13	37.10
49.75-	50.24	19.59-	19.77	120	642	5.98	31.97
49.25-	49.74	19.39-	19.58	79	522	3.93	26.00
48.75-	49.24	19.19-	19.38	84	443	4.18	22.06
48.25-	48.74	19.00-	19.18	65	359	3.24	17.88
47.75-	48.24	18.80-	18.99	70	294	3.49	14.64
47.25-	47.74	18.60-	18.79	41	224	2.04	11.16
46.75-	47.24	18.41-	18.59	51	183	2.54	9.11
46.25-	46.74	18.21-	18.40	17	132	0.85	6.57
45.75-	46.24	18.01-	18.20	34	115	1.69	5.73
45.25-	45.74	17.82-	18.00	19	81	0.95	4.03
44.75-	45.24	17.62-	17.81	18	62	0.90	3.09
44.25-	44.74	17.42-	17.61	20	44	1.00	2.19
43.75-	44.24	17.22-	17.41	11	24	0.55	1.20
43.25-	43.74	17.03-	17.21	1	13	0.05	0.65
42.75-	43.24	16.83-	17.02	3	12	0.15	0.60
42.25-	42.74	16.63-	16.82	6	9	0.30	0.45
41.75-	42.24	16.44-	16.62	0	3	0.00	0.15
41.25-	41.74	16.24-	16.43	1	3	0.05	0.15
40.75-	41.24	16.04-	16.23	1	2	0.05	0.10
40.25-	40.74	15.85-	16.03	0	1	0.00	0.05
39.75-	40.24	15.65-	15.84	1	1	0.05	0.05

43 Interscye, Maximum

PERCENTILES

CENTIMETERS		INCHES
59.88	99 TH	23.58
58.86	98 TH	23.17
58.23	97 TH	22.93
57.39	95 TH	22.60
56.13	90 TH	22.10
55.29	85 TH	21.77
54.63	80 TH	21.51
54.06	75 TH	21.29
53.56	70 TH	21.09
53.09	65 TH	20.90
52.65	60 TH	20.73
52.22	55 TH	20.56
51.79	50 TH	20.39
51.36	45 TH	20.22
50.93	40 TH	20.05
50.48	35 TH	19.87
50.01	30 TH	19.69
49.49	25 TH	19.49
48.92	20 TH	19.26
48.25	15 TH	19.00
47.41	10 TH	18.66
46.16	5 TH	18.17
45.36	3 RD	17.86
44.78	2 ND	17.63
43.88	1 ST	17.28



Interscye, Maximum: Subject stands erect, with his arms extended forward horizontally. Interscye, maximum is measured as the horizontal distance across the surface of the back between the rear borders of the right and left armpits (scye points). A steel tape is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
51.81	MEAN	20.40
0.08	SE(M)	0.03
3.40	ST DEV	1.34
0.05	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.05
KURTOSIS--BETA II = 3.18
COEFFICIENT OF VARIATION = 6.56

....

SAMPLE SIZE = 2008

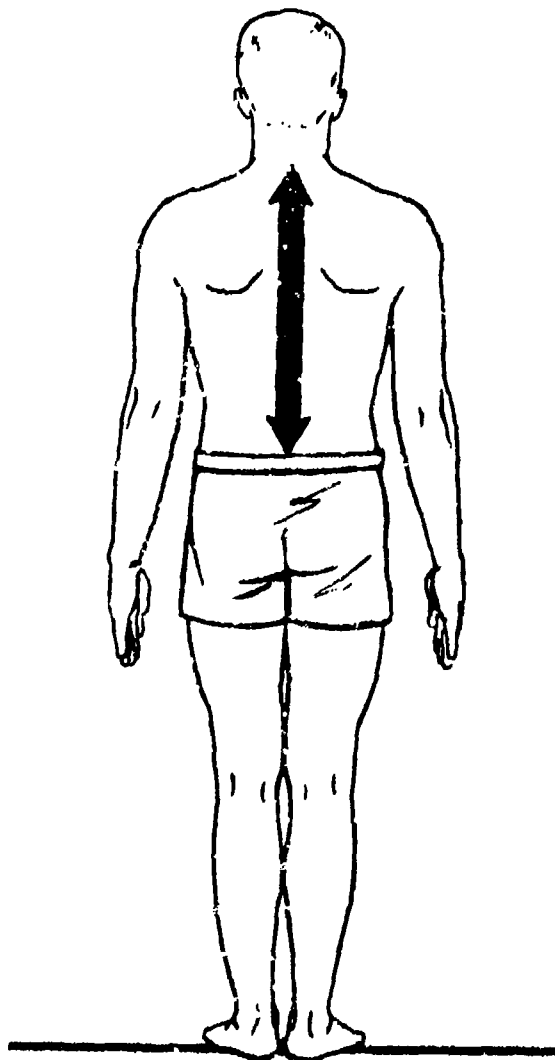
44 Waist Back Length

--INTERVALS--				--FREQUENCIES--		
CENTIMETERS		INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
55.75-	56.24	21.95- 22.14	1	2008	0.05	100.00
55.25-	55.74	21.75- 21.94	1	2007	0.05	99.95
54.75-	55.24	21.56- 21.74	0	2006	0.00	99.90
54.25-	54.74	21.36- 21.55	1	2006	0.05	99.90
53.75-	54.24	21.16- 21.35	2	2005	0.10	99.85
53.25-	53.74	20.96- 21.15	4	2003	0.20	99.75
52.75-	53.24	20.77- 20.95	12	1999	0.60	99.55
52.25-	52.74	20.57- 20.76	12	1987	0.60	98.95
51.75-	52.24	20.37- 20.56	18	1975	0.90	98.36
51.25-	51.74	20.18- 20.36	13	1957	0.65	97.46
50.75-	51.24	19.98- 20.17	20	1944	1.00	96.81
50.25-	50.74	19.78- 19.97	37	1924	1.84	95.82
49.75-	50.24	19.59- 19.77	45	1887	2.24	93.97
49.25-	49.74	19.39- 19.58	42	1842	2.09	91.73
48.75-	49.24	19.19- 19.38	59	1800	2.94	89.64
48.25-	48.74	19.00- 19.18	61	1741	3.04	86.70
47.75-	48.24	18.80- 18.99	76	1680	3.78	83.67
47.25-	47.74	18.60- 18.79	67	1604	3.34	79.88
46.75-	47.24	18.41- 18.59	93	1537	4.63	76.54
46.25-	46.74	18.21- 18.40	80	1444	3.98	71.91
45.75-	46.24	18.01- 18.20	107	1364	5.33	67.93
45.25-	45.74	17.82- 18.00	88	1257	4.38	62.60
44.75-	45.24	17.62- 17.81	106	1169	5.28	58.22
44.25-	44.74	17.42- 17.61	88	1063	4.38	52.94
43.75-	44.24	17.22- 17.41	117	975	5.83	48.56
43.25-	43.74	17.03- 17.21	107	858	5.33	42.73
42.75-	43.24	16.83- 17.02	105	751	5.23	37.40
42.25-	42.74	16.63- 16.82	107	646	5.33	32.17
41.75-	42.24	16.44- 16.62	107	539	5.33	26.84
41.25-	41.74	16.24- 16.43	101	432	5.03	21.51
40.75-	41.24	16.04- 16.23	77	331	3.83	16.48
40.25-	40.74	15.85- 16.03	62	254	3.09	12.65
39.75-	40.24	15.65- 15.84	47	192	2.34	9.56
39.25-	39.74	15.45- 15.64	43	145	2.14	7.22
38.75-	39.24	15.26- 15.44	24	102	1.20	5.08
38.25-	38.74	15.06- 15.25	31	78	1.54	3.88
37.75-	38.24	14.86- 15.05	9	47	0.45	2.34
37.25-	37.74	14.67- 14.85	18	38	0.90	1.89
36.75-	37.24	14.47- 14.66	7	20	0.35	1.00
36.25-	36.74	14.27- 14.46	6	13	0.30	0.65
35.75-	36.24	14.07- 14.26	4	7	0.20	0.35
35.25-	35.74	13.88- 14.06	3	3	0.15	0.15

44 Waist Back Length

PERCENTILES

CENTIMETERS		INCHES
52.75	99 TH	20.77
52.00	98 TH	20.47
51.46	97 TH	20.26
50.67	95 TH	19.95
49.35	90 TH	19.43
48.42	85 TH	19.06
47.67	80 TH	18.77
47.02	75 TH	18.51
46.45	70 TH	18.29
45.92	65 TH	18.08
45.42	60 TH	17.88
44.94	55 TH	17.69
44.47	50 TH	17.51
44.02	45 TH	17.33
43.56	40 TH	17.15
43.10	35 TH	16.97
42.63	30 TH	16.78
42.12	25 TH	16.58
41.58	20 TH	16.37
40.96	15 TH	16.13
40.22	10 TH	15.83
39.15	5 TH	15.41
38.48	3 RD	15.15
37.99	2 ND	14.96
37.21	1 ST	14.65



Waist Back Length: Subject stands erect, with head level. Waist back length is measured as the vertical distance along the surface of the back from the cervical point (the bony protrusion of the 7th cervical vertebra at the base of the neck) to the level of the waist. A steel tape is used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
44.67	MEAN	17.59
0.08	SE(M)	0.03
3.49	ST DEV	1.37
0.06	SE(SD)	0.02
....		
SYMMETRY--BETA I		= 0.17
KURTOSIS--BETA II		= 2.63
COEFFICIENT OF VARIATION		= 7.81
....		
SAMPLE SIZE		= 2003

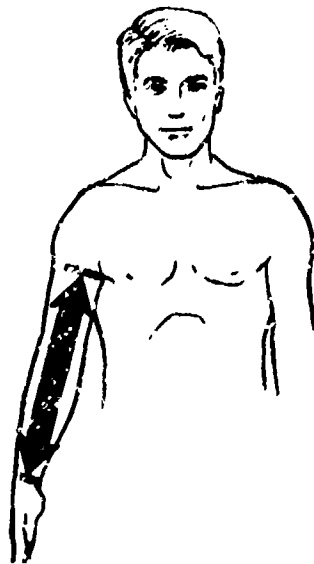
45 Sleeve Inseam Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
57.25-	57.64	22.54-	22.69	2	2008	0.10	100.00
56.85-	57.24	22.38-	22.53	0	2006	0.00	99.90
56.45-	56.84	22.22-	22.37	1	2006	0.05	99.90
56.05-	56.44	22.07-	22.21	2	2005	0.10	99.85
55.65-	56.04	21.91-	22.06	1	2003	0.05	99.75
55.25-	55.64	21.75-	21.90	2	2002	0.10	99.70
54.85-	55.24	21.59-	21.74	3	2000	0.15	99.60
54.45-	54.84	21.44-	21.58	5	1997	0.25	99.45
54.05-	54.44	21.28-	21.43	8	1992	0.40	99.20
53.65-	54.04	21.12-	21.27	14	1984	0.70	98.80
53.25-	53.64	20.96-	21.11	15	1970	0.75	98.11
52.85-	53.24	20.81-	20.95	32	1955	1.59	97.36
52.45-	52.84	20.65-	20.80	28	1923	1.39	95.77
52.05-	52.44	20.49-	20.64	38	1895	1.89	94.37
51.65-	52.04	20.33-	20.48	40	1857	1.99	92.48
51.25-	51.64	20.18-	20.32	50	1817	2.49	90.49
50.85-	51.24	20.02-	20.17	69	1767	3.44	88.00
50.45-	50.84	19.86-	20.01	78	1698	3.88	84.56
50.05-	50.44	19.70-	19.85	93	1620	4.63	80.68
49.65-	50.04	19.55-	19.69	102	1527	5.08	76.05
49.25-	49.64	19.39-	19.54	120	1425	5.98	70.97
48.85-	49.24	19.23-	19.38	114	1305	5.68	64.99
48.45-	48.84	19.07-	19.22	123	1191	6.13	59.31
48.05-	48.44	18.92-	19.06	139	1068	6.92	53.19
47.65-	48.04	18.76-	18.91	112	929	5.58	46.26
47.25-	47.64	18.60-	18.75	128	817	6.37	40.69
46.85-	47.24	18.45-	18.59	117	689	5.83	34.31
46.45-	46.84	18.29-	18.44	94	572	4.68	28.49
46.05-	46.44	18.13-	18.28	107	478	5.33	23.80
45.65-	46.04	17.97-	18.12	77	371	3.83	18.48
45.25-	45.64	17.82-	17.96	63	294	3.14	14.64
44.85-	45.24	17.66-	17.81	71	231	3.54	11.50
44.45-	44.84	17.50-	17.65	37	160	1.84	7.97
44.05-	44.44	17.34-	17.49	48	123	2.39	6.13
43.65-	44.04	17.19-	17.33	29	75	1.44	3.74
43.25-	43.64	17.03-	17.18	8	46	0.40	2.29
42.85-	43.24	16.87-	17.02	13	38	0.65	1.89
42.45-	42.84	16.71-	16.86	12	25	0.60	1.25
42.05-	42.44	16.56-	16.70	4	13	0.20	0.65
41.65-	42.04	16.40-	16.55	4	9	0.20	0.45
41.25-	41.64	16.24-	16.39	2	5	0.10	0.25
40.85-	41.24	16.08-	16.23	1	3	0.05	0.15
40.45-	40.84	15.93-	16.07	2	2	0.10	0.10

45 Sleeve Inseam Length

PERCENTILES

CENTIMETERS		INCHES
54.26	99 TH	21.36
53.60	98 TH	21.10
53.16	97 TH	20.93
52.55	95 TH	20.69
51.60	90 TH	20.31
50.94	85 TH	20.06
50.43	80 TH	19.85
49.99	75 TH	19.68
49.59	70 TH	19.52
49.23	65 TH	19.38
48.89	60 TH	19.25
48.56	55 TH	19.12
48.24	50 TH	18.99
47.92	45 TH	18.87
47.60	40 TH	18.74
47.28	35 TH	18.61
46.94	30 TH	18.48
46.57	25 TH	18.34
46.17	20 TH	18.18
45.71	15 TH	18.00
45.13	10 TH	17.77
44.29	5 TH	17.44
43.75	3 RD	17.23
43.35	2 ND	17.07
42.72	1 ST	16.82



Sleeve Inseam Length: Subject stands erect, with his right arm extended and held slightly away from the body. Sleeve inseam length is measured as the distance along the inner surface of the right arm, from the front edge of the armpit to the wrist. A steel tape is used.

THE SUMMARY STATISTICS

CENTIMETERS		INCHES
48.31	MEAN	19.02
0.06	SE(M)	0.02
2.51	ST DEV	0.99
0.04	SE(SD)	0.02

....
 SYMMETRY--BETA I = 0.14
 KURTOSIS--BETA II = 2.99
 COEFFICIENT OF VARIATION = 5.20

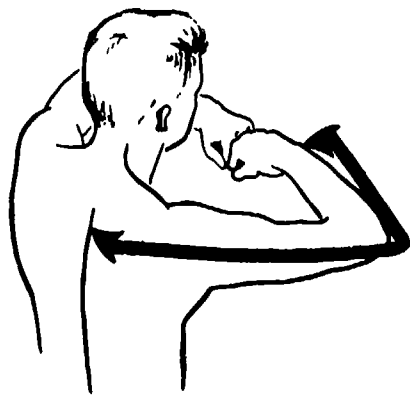
 SAMPLE SIZE = 2008

46 Sleeve Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
98.75-	99.24	38.88-	39.06	1	2008	0.05	100.00
98.25-	98.74	38.68-	38.87	0	2007	0.00	99.95
97.75-	98.24	38.48-	38.67	1	2007	0.05	99.95
97.25-	97.74	38.29-	38.47	1	2006	0.05	99.90
96.75-	97.24	38.09-	38.28	2	2005	0.10	99.85
96.25-	96.74	37.89-	38.08	3	2003	0.15	99.75
95.75-	96.24	37.70-	37.88	4	2000	0.20	99.60
95.25-	95.74	37.50-	37.69	1	1996	0.05	99.40
94.75-	95.24	37.30-	37.49	10	1995	0.50	99.35
94.25-	94.74	37.11-	37.29	10	1985	0.50	98.85
93.75-	94.24	36.91-	37.10	22	1975	1.10	98.36
93.25-	93.74	36.71-	36.90	13	1953	0.65	97.26
92.75-	93.24	36.52-	36.70	27	1940	1.34	96.61
92.25-	92.74	36.32-	36.51	27	1913	1.34	95.27
91.75-	92.24	36.12-	36.31	22	1886	1.10	93.92
91.25-	91.74	35.93-	36.11	43	1864	2.14	92.83
90.75-	91.24	35.73-	35.92	40	1821	1.99	90.69
90.25-	90.74	35.53-	35.72	71	1781	3.54	88.70
89.75-	90.24	35.33-	35.52	66	1710	3.29	85.16
89.25-	89.74	35.14-	35.32	76	1644	3.78	81.87
88.75-	89.24	34.94-	35.13	88	1568	4.38	78.09
88.25-	88.74	34.74-	34.93	69	1480	3.44	73.71
87.75-	88.24	34.55-	34.73	99	1411	4.93	70.27
87.25-	87.74	34.35-	34.54	97	1312	4.83	65.34
86.75-	87.24	34.15-	34.34	103	1215	5.13	60.51
86.25-	86.74	33.96-	34.14	81	1112	4.03	55.38
85.75-	86.24	33.76-	33.95	111	1031	5.53	51.34
85.25-	85.74	33.56-	33.75	92	920	4.58	45.82
84.75-	85.24	33.37-	33.55	113	828	5.63	41.24
84.25-	84.74	33.17-	33.36	100	715	4.98	35.61
83.75-	84.24	32.97-	33.16	87	615	4.33	30.63
83.25-	83.74	32.78-	32.96	83	528	4.13	26.29
82.75-	83.24	32.58-	32.77	98	445	4.88	22.16
82.25-	82.74	32.38-	32.57	54	347	2.69	17.28
81.75-	82.24	32.19-	32.37	37	293	1.84	14.59
81.25-	81.74	31.99-	32.18	66	256	3.29	12.75
80.75-	81.24	31.79-	31.98	51	190	2.54	9.46
80.25-	80.74	31.59-	31.78	34	139	1.69	6.92
79.75-	80.24	31.40-	31.58	32	105	1.59	5.23
79.25-	79.74	31.20-	31.39	23	73	1.15	3.64
78.75-	79.24	31.00-	31.19	21	50	1.05	2.49
78.25-	78.74	30.81-	30.99	4	29	0.20	1.44
77.75-	78.24	30.61-	30.80	9	25	0.45	1.25
77.25-	77.74	30.41-	30.60	4	16	0.20	0.80
76.75-	77.24	30.22-	30.40	4	12	0.20	0.60
76.25-	76.74	30.02-	30.21	2	8	0.10	0.40
75.75-	76.24	29.82-	30.01	3	6	0.15	0.30
75.25-	75.74	29.63-	29.81	1	3	0.05	0.15
74.75-	75.24	29.43-	29.62	1	2	0.05	0.10
74.25-	74.74	29.23-	29.42	1	1	0.05	0.05

PERCENTILES

CENTIMETERS		INCHES
94.94	99 TH	37.38
94.06	98 TH	37.03
93.46	97 TH	36.80
92.61	95 TH	36.46
91.23	90 TH	35.92
90.27	85 TH	35.54
89.50	80 TH	35.24
88.83	75 TH	34.97
88.23	70 TH	34.74
87.68	65 TH	34.52
87.16	60 TH	34.31
86.66	55 TH	34.12
86.16	50 TH	33.92
85.67	45 TH	33.73
85.18	40 TH	33.54
84.68	35 TH	33.34
84.16	30 TH	33.13
83.60	25 TH	32.91
82.99	20 TH	32.67
82.30	15 TH	32.40
81.44	10 TH	32.06
80.22	5 TH	31.58
79.45	3 RD	31.28
78.90	2 ND	31.06
78.04	1 ST	30.73



Sleeve Length: Subject stands erect, with his arms bent at the elbows, fists pressed together in front of him, and with his arms held horizontally. Sleeve length is measured as the horizontal distance along the outer surface of the right arm, from the middle of the back, over the elbow, to the center of the bony prominence at the outer edge of the wrist (styloid process of the ulna). A steel tape is used.

THE SUMMARY STATISTICS

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CENTIMETERS		INCHES
86.27	MEAN	33.96
0.08	SE(M)	0.03
3.76	ST DEV	1.48
0.06	SE(SD)	0.02

....

SYMMETRY--BETA I = 0.09

KURTOSIS--BETA II = 2.81

COEFFICIENT OF VARIATION = 4.36

....

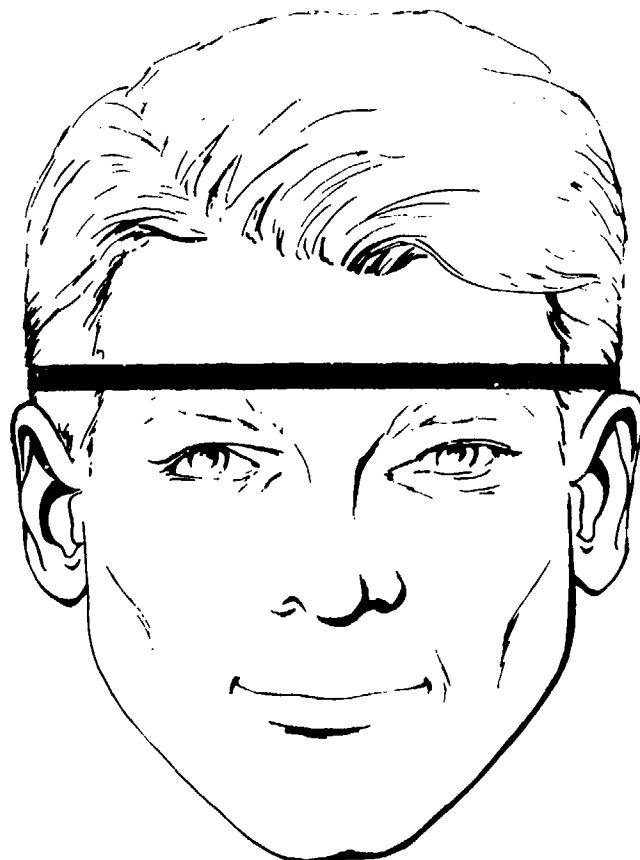
SAMPLE SIZE = 2008

47 Head Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
61.25-	61.54	24.11-	24.22	1	2008	0.05	100.00
60.95-	61.24	24.00-	24.10	2	2007	0.10	99.95
60.65-	60.94	23.88-	23.99	5	2005	0.25	99.85
60.35-	60.64	23.76-	23.87	4	2000	0.20	99.60
60.05-	60.34	23.64-	23.75	4	1996	0.20	99.40
59.75-	60.04	23.52-	23.63	7	1992	0.35	99.20
59.45-	59.74	23.41-	23.51	13	1985	0.65	98.85
59.15-	59.44	23.29-	23.40	18	1972	0.90	98.21
58.85-	59.14	23.17-	23.28	22	1954	1.10	97.31
58.55-	58.84	23.05-	23.16	32	1932	1.59	96.22
58.25-	58.54	22.93-	23.04	53	1900	2.64	94.62
57.95-	58.24	22.82-	22.92	91	1847	4.53	91.98
57.65-	57.94	22.70-	22.81	70	1756	3.49	87.45
57.35-	57.64	22.58-	22.69	104	1686	5.18	83.96
57.05-	57.34	22.46-	22.57	149	1582	7.42	78.78
56.75-	57.04	22.34-	22.45	100	1433	4.98	71.36
56.45-	56.74	22.22-	22.33	129	1333	6.42	66.38
56.15-	56.44	22.11-	22.21	197	1204	9.81	59.96
55.85-	56.14	21.99-	22.10	158	1007	7.87	50.15
55.55-	55.84	21.87-	21.98	150	849	7.47	42.28
55.25-	55.54	21.75-	21.86	133	699	6.62	34.81
54.95-	55.24	21.63-	21.74	120	566	5.98	28.19
54.65-	54.94	21.52-	21.62	120	446	5.98	22.21
54.35-	54.64	21.40-	21.51	67	326	3.34	16.24
54.05-	54.34	21.28-	21.39	74	259	3.69	12.90
53.75-	54.04	21.16-	21.27	58	185	2.89	9.21
53.45-	53.74	21.04-	21.15	49	127	2.44	6.32
53.15-	53.44	20.93-	21.03	29	78	1.44	3.88
52.85-	53.14	20.81-	20.92	14	49	0.70	2.44
52.55-	52.84	20.69-	20.80	20	35	1.00	1.74
52.25-	52.54	20.57-	20.68	6	15	0.30	0.75
51.95-	52.24	20.45-	20.56	7	9	0.35	0.45
51.65-	51.94	20.33-	20.44	1	2	0.05	0.10
51.35-	51.64	20.22-	20.32	0	1	0.00	0.05
51.05-	51.34	20.10-	20.21	1	1	0.05	0.05

47 Head Circumference

PERCENTILES



CENTIMETERS		INCHES
59.87	99 TH	23.57
59.37	98 TH	23.37
59.07	97 TH	23.26
58.67	95 TH	23.10
58.09	90 TH	22.87
57.71	85 TH	22.72
57.42	80 TH	22.60
57.16	75 TH	22.50
56.93	70 TH	22.41
56.72	65 TH	22.33
56.52	60 TH	22.25
56.33	55 TH	22.18
56.14	50 TH	22.10
55.94	45 TH	22.02
55.75	40 TH	21.95
55.54	35 TH	21.87
55.33	30 TH	21.78
55.09	25 TH	21.69
54.83	20 TH	21.59
54.53	15 TH	21.47
54.14	10 TH	21.32
53.59	5 TH	21.10
53.24	3 RD	20.96
52.99	2 ND	20.86
52.62	1 ST	20.72

THE SUMMARY STATISTICS

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Head Circumference: Subject sits erect, with head level. The maximum circumference of the head is measured. A steel tape is used, with the tape passing just above the bony brow ridges of the forehead and above both ears.

CENTIMETERS		INCHES
56.13	MEAN	22.10
0.03	SE(M)	0.01
1.54	ST DEV	0.61
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.07
KURTOSIS--BETA II = 3.01
COEFFICIENT OF VARIATION = 2.74

....

SAMPLE SIZE = 2008

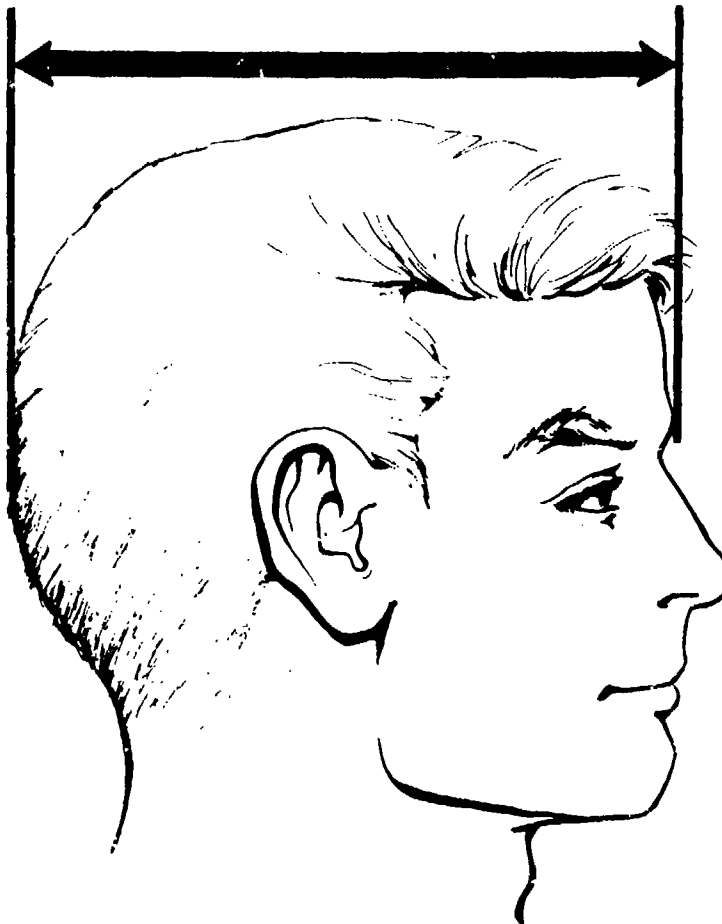
48 Head Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
22.05-	22.24	8.68-	8.75	1	2008	0.05	100.00
21.85-	22.04	8.60-	8.67	1	2007	0.05	99.95
21.65-	21.84	8.52-	8.59	0	2006	0.00	99.90
21.45-	21.64	8.45-	8.51	4	2006	0.20	99.90
21.25-	21.44	8.37-	8.44	5	2002	0.25	99.70
21.05-	21.24	8.29-	8.36	14	1997	0.70	99.45
20.85-	21.04	8.21-	8.28	24	1983	1.20	98.75
20.65-	20.84	8.13-	8.20	52	1959	2.59	97.56
20.45-	20.64	8.05-	8.12	52	1907	2.59	94.97
20.25-	20.44	7.97-	8.04	106	1855	5.28	92.38
20.05-	20.24	7.89-	7.96	152	1749	7.57	87.10
19.85-	20.04	7.82-	7.88	150	1597	7.47	79.53
19.65-	19.84	7.74-	7.81	203	1447	10.11	72.06
19.45-	19.64	7.66-	7.73	211	1244	10.51	61.95
19.25-	19.44	7.58-	7.65	223	1033	11.11	51.44
19.05-	19.24	7.50-	7.57	219	810	10.91	40.34
18.85-	19.04	7.42-	7.49	160	591	7.97	29.43
18.65-	18.84	7.34-	7.41	146	431	7.27	21.46
18.45-	18.64	7.26-	7.33	96	235	4.78	14.19
18.25-	18.44	7.19-	7.25	89	189	4.43	9.41
18.05-	18.24	7.11-	7.18	53	100	2.64	4.98
17.85-	18.04	7.03-	7.10	24	47	1.20	2.34
17.65-	17.84	6.95-	7.02	12	23	0.60	1.15
17.45-	17.64	6.87-	6.94	6	11	0.30	0.55
17.25-	17.44	6.79-	6.86	4	5	0.20	0.25
17.05-	17.24	6.71-	6.78	0	1	0.00	0.05
16.85-	17.04	6.63-	6.70	1	1	0.05	0.05

PERCENTILES

CENTIMETERS INCHES

21.12	99 TH	8.31
20.93	98 TH	8.24
20.81	97 TH	8.19
20.64	95 TH	8.13
20.37	90 TH	8.02
20.19	85 TH	7.95
20.05	80 TH	7.89
19.93	75 TH	7.85
19.82	70 TH	7.80
19.71	65 TH	7.76
19.62	60 TH	7.72
19.52	55 TH	7.69
19.43	50 TH	7.65
19.34	45 TH	7.61
19.24	40 TH	7.58
19.14	35 TH	7.54
19.04	30 TH	7.50
18.93	25 TH	7.45
18.81	20 TH	7.41
18.67	15 TH	7.35
18.50	10 TH	7.28
18.25	5 TH	7.19
18.09	3 RD	7.12
17.98	2 ND	7.08
17.81	1 ST	7.01



Head Length: Subject sits erect, with head level. The maximum length of the head is measured from the back of the head (occiput) to the forehead (glabella). Spreading calipers are used.

THE SUMMARY STATISTICS

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CENTIMETERS INCHES

19.43	MEAN	7.65
0.02	SE(M)	0.01
0.72	ST DEV	0.28
0.01	SE(SD)	0.00

.....

SYMMETRY--BETA I = 0.05

KURTOSIS--BETA II = 2.93

COEFFICIENT OF VARIATION = 3.73

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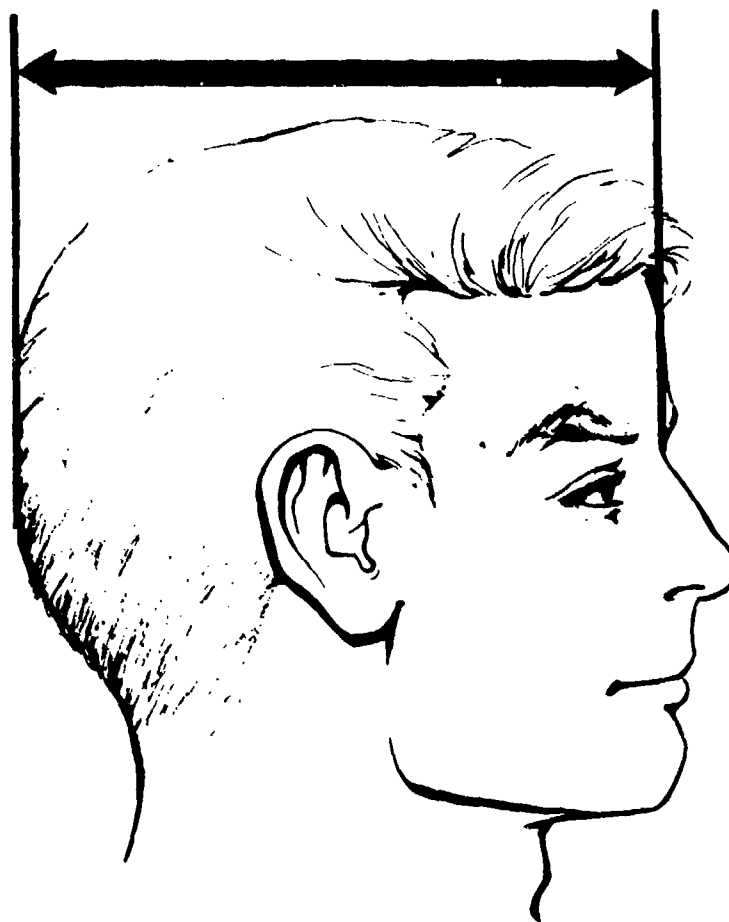
SAMPLE SIZE = 2008

49 Occiput-Nasal Root

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
21.55-	21.74	8.48-	8.55	2	2008	0.10	100.00
21.35-	21.54	8.41-	8.47	1	2006	0.05	99.90
21.15-	21.34	8.33-	8.40	2	2005	0.10	99.85
20.95-	21.14	8.25-	8.32	8	2003	0.40	99.75
20.75-	20.94	8.17-	8.24	14	1995	0.70	99.35
20.55-	20.74	8.09-	8.16	19	1981	0.95	98.66
20.35-	20.54	8.01-	8.08	35	1962	1.74	97.71
20.15-	20.34	7.93-	8.00	46	1927	2.29	95.97
19.95-	20.14	7.85-	7.92	89	1881	4.43	93.68
19.75-	19.94	7.78-	7.84	122	1792	6.08	89.24
19.55-	19.74	7.70-	7.77	185	1670	9.21	83.17
19.35-	19.54	7.62-	7.69	192	1485	9.56	73.95
19.15-	19.34	7.54-	7.61	210	1293	10.46	64.39
18.95-	19.14	7.46-	7.53	220	1083	10.96	53.93
18.75-	18.94	7.38-	7.45	209	863	10.41	42.98
18.55-	18.74	7.30-	7.37	197	654	9.81	32.57
18.35-	18.54	7.22-	7.29	138	457	6.87	22.76
18.15-	18.34	7.15-	7.21	135	319	6.72	15.89
17.95-	18.14	7.07-	7.14	72	184	3.59	9.16
17.75-	17.94	6.99-	7.06	49	112	2.44	5.58
17.55-	17.74	6.91-	6.98	28	63	1.39	3.14
17.35-	17.54	6.83-	6.90	16	35	0.80	1.74
17.15-	17.34	6.75-	6.82	17	19	0.85	0.95
16.95-	17.14	6.67-	6.74	1	2	0.05	0.10
16.75-	16.94	6.59-	6.66	0	1	0.00	0.05
16.55-	16.74	6.52-	6.58	1	1	0.05	0.05

49 Occiput-Nasal Root

PERCENTILES



CENTIMETERS		INCHES	
20.84	99 TH	8.21	
20.61	98 TH	8.11	
20.47	97 TH	8.06	
20.28	95 TH	7.98	
20.00	90 TH	7.87	
19.82	85 TH	7.80	
19.68	80 TH	7.75	
19.56	75 TH	7.70	
19.45	70 TH	7.66	
19.35	65 TH	7.62	
19.26	60 TH	7.58	
19.17	55 TH	7.55	
19.08	50 TH	7.51	
18.99	45 TH	7.48	
18.90	40 TH	7.44	
18.81	35 TH	7.40	
18.71	30 TH	7.37	
18.60	25 TH	7.32	
18.48	20 TH	7.28	
18.34	15 TH	7.22	
18.16	10 TH	7.15	
17.89	5 TH	7.04	
17.72	3 RD	6.97	
17.58	2 ND	6.92	
17.38	1 ST	6.84	

THE SUMMARY STATISTICS

....

Occiput-Nasal Root: Subject sits erect, with head level. The distance from the back of the head (occiput) to the nasal root depression between the eyes is measured. Spreading calipers are used.

CENTIMETERS		INCHES	
19.08	MEAN	7.51	
0.02	SE(M)	0.01	
0.72	ST DEV	0.28	
0.01	SE(SD)	0.00	

....

SYMMETRY--BETA I = 0.05
KURTOSIS--BETA II = 3.05
COEFFICIENT OF VARIATION = 3.77

....

SAMPLE SIZE = 2008

50 Occiput-External Canthus

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
19.95-	20.14	7.85-	7.92	3	2008	0.15	100.00
19.75-	19.94	7.78-	7.84	8	2005	0.40	99.85
19.55-	19.74	7.70-	7.77	9	1997	0.45	99.45
19.35-	19.54	7.62-	7.69	24	1988	1.20	99.00
19.15-	19.34	7.54-	7.61	18	1964	0.90	97.81
18.95-	19.14	7.46-	7.53	44	1946	2.19	96.91
18.75-	18.94	7.38-	7.45	57	1902	2.84	94.72
18.55-	18.74	7.30-	7.37	65	1845	3.24	91.88
18.35-	18.54	7.22-	7.29	76	1780	3.78	88.65
18.15-	18.34	7.15-	7.21	114	1704	5.68	84.86
17.95-	18.14	7.07-	7.14	153	1590	7.62	79.18
17.75-	17.94	6.99-	7.06	107	1437	5.33	71.56
17.55-	17.74	6.91-	6.98	137	1330	6.82	66.24
17.35-	17.54	6.83-	6.90	169	1193	8.42	59.41
17.15-	17.34	6.75-	6.82	143	1024	7.12	51.00
16.95-	17.14	6.67-	6.74	147	881	7.32	43.87
16.75-	16.94	6.59-	6.66	168	734	8.37	36.55
16.55-	16.74	6.52-	6.58	124	566	6.18	28.19
16.35-	16.54	6.44-	6.51	131	442	6.52	22.01
16.15-	16.34	6.36-	6.43	94	311	4.68	15.49
15.95-	16.14	6.28-	6.35	56	217	2.79	10.81
15.75-	15.94	6.20-	6.27	69	161	3.44	8.02
15.55-	15.74	6.12-	6.19	34	92	1.69	4.58
15.35-	15.54	6.04-	6.11	21	58	1.05	2.89
15.15-	15.34	5.96-	6.03	25	37	1.25	1.84
14.95-	15.14	5.89-	5.95	4	12	0.20	0.60
14.75-	14.94	5.81-	5.88	3	8	0.15	0.40
14.55-	14.74	5.73-	5.80	2	5	0.10	0.25
14.35-	14.54	5.65-	5.72	2	3	0.10	0.15
14.15-	14.34	5.57-	5.64	1	1	0.05	0.05

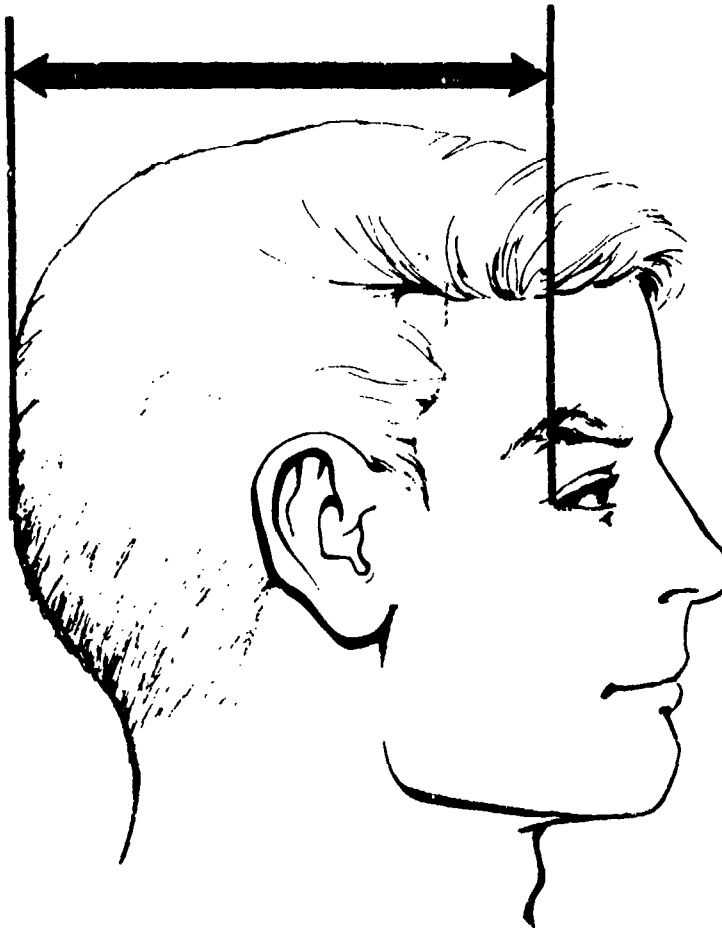
50 Occiput-External Canthus

PERCENTILES

CENTIMETERS

INCHES

19.56	99 TH	7.70
19.34	98 TH	7.62
19.20	97 TH	7.56
18.98	95 TH	7.47
18.63	90 TH	7.33
18.38	85 TH	7.24
18.19	80 TH	7.16
18.01	75 TH	7.09
17.86	70 TH	7.03
17.71	65 TH	6.97
17.58	60 TH	6.92
17.45	55 TH	6.87
17.32	50 TH	6.82
17.19	45 TH	6.77
17.06	40 TH	6.72
16.93	35 TH	6.67
16.79	30 TH	6.61
16.65	25 TH	6.55
16.49	20 TH	6.49
16.31	15 TH	6.42
16.08	10 TH	6.33
15.76	5 TH	6.21
15.56	3 RD	6.13
15.42	2 ND	6.07
15.20	1 ST	5.98



THE SUMMARY STATISTICS

....

Occiput-External Canthus: Subject sits erect, with head level. The distance from the back of the head (occiput) to the outer corner (external canthus) of the right eye is measured. An anthropometer is used.

CENTIMETERS

INCHES

17.34	MEAN	6.83
0.02	SE(M)	0.01
0.97	ST DEV	0.38
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.06
KURTOSIS--BETA II = 2.70
COEFFICIENT OF VARIATION = 5.60

....

SAMPLE SIZE = 2008

51 Occiput-Tragion

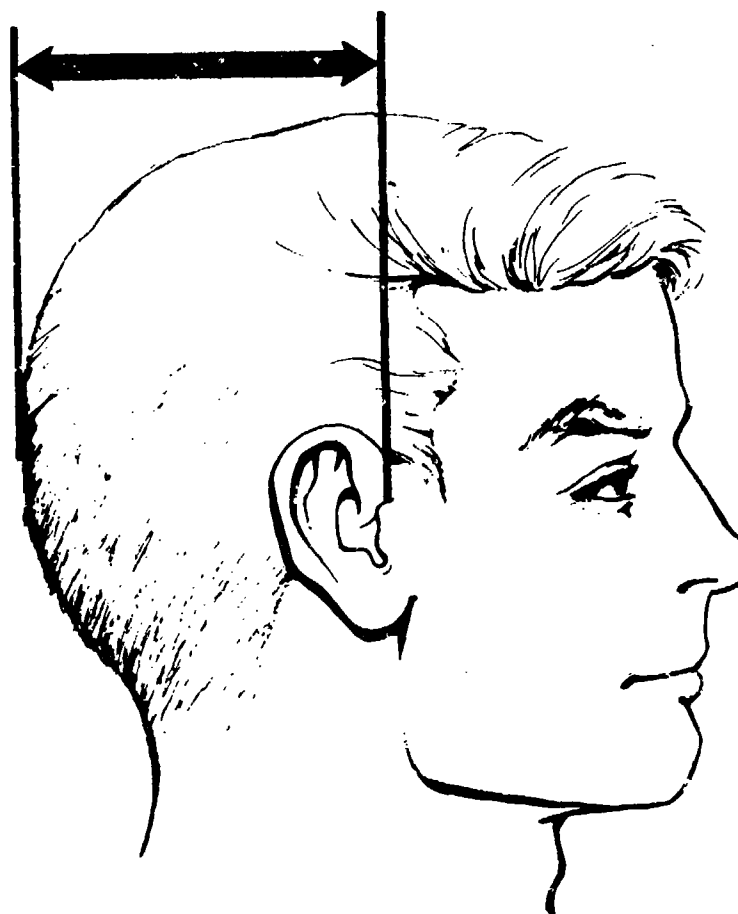
--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FR
13.65-	13.84	5.37-	5.44	2	2008	0.10	100.00
13.45-	13.64	5.30-	5.36	7	2006	0.35	99.90
13.25-	13.44	5.22-	5.29	7	1999	0.35	99.55
13.05-	13.24	5.14-	5.21	6	1992	0.30	99.20
12.85-	13.04	5.06-	5.13	20	1986	1.00	98.90
12.65-	12.84	4.98-	5.05	24	1966	1.20	97.91
12.45-	12.64	4.90-	4.97	38	1942	1.89	96.71
12.25-	12.44	4.82-	4.89	63	1904	3.14	94.82
12.05-	12.24	4.74-	4.81	67	1841	3.34	91.68
11.85-	12.04	4.67-	4.73	86	1774	4.28	88.35
11.65-	11.84	4.59-	4.66	63	1688	3.14	84.06
11.45-	11.64	4.51-	4.58	70	1625	3.49	80.93
11.25-	11.44	4.43-	4.50	98	1555	4.82	77.44
11.05-	11.24	4.35-	4.42	100	1457	4.98	72.56
10.85-	11.04	4.27-	4.34	100	1357	4.98	67.58
10.65-	10.84	4.19-	4.26	85	1257	4.23	62.60
10.45-	10.64	4.11-	4.18	96	1172	4.78	58.37
10.25-	10.44	4.04-	4.10	102	1076	5.08	53.59
10.05-	10.24	3.96-	4.03	120	974	5.98	48.51
9.85-	10.04	3.88-	3.95	134	854	6.67	42.53
9.65-	9.84	3.80-	3.87	131	720	6.52	35.86
9.45-	9.64	3.72-	3.79	126	589	6.27	29.33
9.25-	9.44	3.64-	3.71	117	463	5.83	23.06
9.05-	9.24	3.56-	3.63	94	346	4.68	17.23
8.85-	9.04	3.48-	3.55	103	252	5.13	12.55
8.65-	8.84	3.41-	3.47	52	149	2.59	7.42
8.45-	8.64	3.33-	3.40	40	97	1.99	4.83
8.25-	8.44	3.25-	3.32	29	57	1.44	2.84
8.05-	8.24	3.17-	3.24	12	28	0.60	1.39
7.85-	8.04	3.09-	3.16	7	16	0.35	0.80
7.65-	7.84	3.01-	3.08	5	9	0.25	0.45
7.45-	7.64	2.93-	3.00	1	4	0.05	0.20
7.25-	7.44	2.85-	2.92	2	3	0.10	0.15
7.05-	7.24	2.78-	2.84	0	1	0.00	0.05
6.85-	7.04	2.70-	2.77	0	1	0.00	0.05
6.65-	6.84	2.62-	2.69	1	1	0.05	0.05

51 Occiput-Tragion

PERCENTILES

CENTIMETERS

INCHES



13.03	99 TH	5.13
12.91	98 TH	5.08
12.78	97 TH	5.03
12.56	95 TH	4.95
12.14	90 TH	4.78
11.82	85 TH	4.65
11.55	80 TH	4.55
11.31	75 TH	4.45
11.09	70 TH	4.37
10.89	65 TH	4.29
10.71	60 TH	4.22
10.53	55 TH	4.15
10.36	50 TH	4.08
10.19	45 TH	4.01
10.03	40 TH	3.95
9.86	35 TH	3.88
9.70	30 TH	3.82
9.52	25 TH	3.75
9.34	20 TH	3.68
9.14	15 TH	3.60
8.92	10 TH	3.51
8.62	5 TH	3.39
8.45	3 RD	3.33
8.33	2 ND	3.28
8.15	1 ST	3.21

THE SUMMARY STATISTICS

....

Occiput-Tragion: Subject sits erect, with head level. The distance from the back of the head (occiput) to the cartilaginous notch (tragion) at the front of the right ear is measured. An anthropometer is used.

CENTIMETERS

INCHES

10.45	MEAN	4.11
0.03	SE(M)	0.01
1.21	ST DEV	0.48
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.23
KURTOSIS--BETA II = 2.35
COEFFICIENT OF VARIATION = 11.56

....

SAMPLE SIZE = 2008

52 Occiput-Pronasale

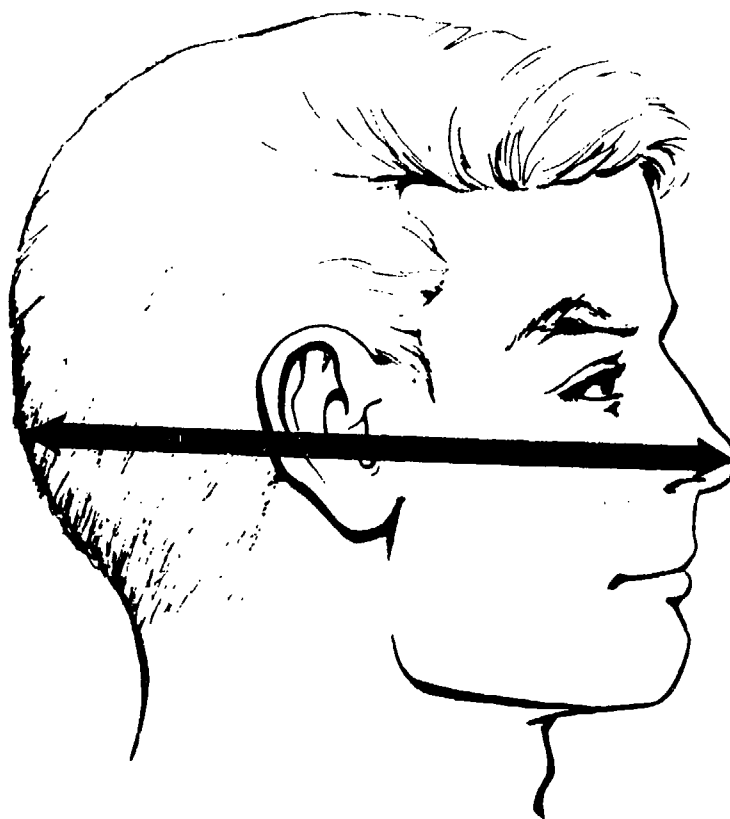
--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
24.85-	25.04	9.78-	9.85	1	2008	0.05	100.00
24.65-	24.84	9.70-	9.77	1	2007	0.05	99.95
24.45-	24.64	9.63-	9.69	3	2006	0.15	99.90
24.25-	24.44	9.55-	9.62	6	2003	0.30	99.75
24.05-	24.24	9.47-	9.54	7	1997	0.35	99.45
23.85-	24.04	9.39-	9.46	7	1990	0.35	99.10
23.65-	23.84	9.31-	9.38	26	1983	1.29	98.75
23.45-	23.64	9.23-	9.30	42	1957	2.09	97.46
23.25-	23.44	9.15-	9.22	79	1915	3.93	95.37
23.05-	23.24	9.07-	9.14	103	1836	5.13	91.43
22.85-	23.04	9.00-	9.06	86	1733	4.28	86.30
22.65-	22.84	8.92-	8.99	181	1647	9.01	82.02
22.45-	22.64	8.84-	8.91	151	1466	7.52	73.01
22.25-	22.44	8.76-	8.83	216	1315	10.76	65.49
22.05-	22.24	8.68-	8.75	216	1099	10.76	54.73
21.85-	22.04	8.60-	8.67	145	883	7.22	43.97
21.65-	21.84	8.52-	8.59	200	738	9.96	36.75
21.45-	21.64	8.45-	8.51	140	538	6.97	26.79
21.25-	21.44	8.37-	8.44	135	398	6.72	19.82
21.05-	21.24	8.29-	8.36	86	263	4.28	13.10
20.85-	21.04	8.21-	8.28	55	177	2.74	8.81
20.65-	20.84	8.13-	8.20	57	122	2.84	6.08
20.45-	20.64	8.05-	8.12	22	65	1.10	3.24
20.25-	20.44	7.97-	8.04	25	43	1.25	2.14
20.05-	20.24	7.89-	7.96	9	18	0.45	0.90
19.85-	20.04	7.82-	7.88	3	9	0.15	0.45
19.65-	19.84	7.74-	7.81	3	6	0.15	0.30
19.45-	19.64	7.66-	7.73	2	3	0.10	0.15
19.25-	19.44	7.58-	7.65	1	1	0.05	0.05

PERCENTILES

CENTIMETERS

INCHES

23.97	99 TH	9.44
23.76	98 TH	9.35
23.62	97 TH	9.30
23.44	95 TH	9.23
23.16	90 TH	9.12
22.97	85 TH	9.04
22.82	80 TH	8.98
22.69	75 TH	8.93
22.57	70 TH	8.89
22.46	65 TH	8.84
22.36	60 TH	8.80
22.25	55 TH	8.76
22.15	50 TH	8.72
22.05	45 TH	8.68
21.95	40 TH	8.64
21.84	35 TH	8.60
21.72	30 TH	8.55
21.60	25 TH	8.50
21.46	20 TH	8.45
21.29	15 TH	8.38
21.09	10 TH	8.30
20.79	5 TH	8.18
20.59	3 RD	8.11
20.46	2 ND	8.05
20.25	1 ST	7.97



Occiput-Pronasale: Subject sits erect, with head level. The distance from the back of the head (occiput) to the tip of the nose (pronasale) is measured. Spreading calipers are used.

THE SUMMARY STATISTICS

....

CENTIMETERS

INCHES

22.14	MEAN	8.72
0.02	SE(M)	0.01
0.81	ST DEV	0.32
0.01	SE(SD)	0.01

....

SYMMETRY--BETA I = -0.04

KURTOSIS--BETA II = 3.00

COEFFICIENT OF VARIATION = 3.65

....

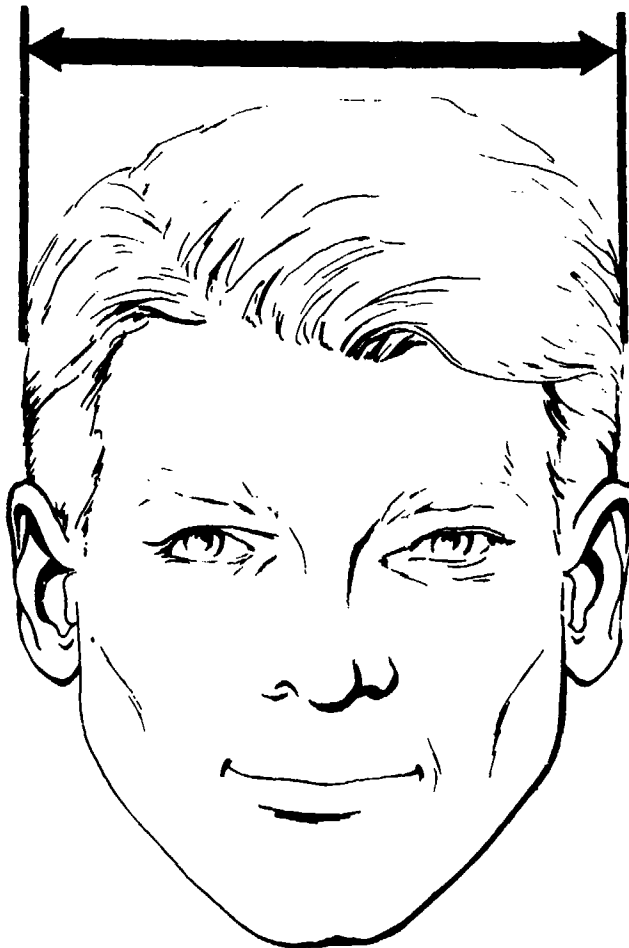
SAMPLE SIZE = 2008

53 Head Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
17.35-	17.44	6.83-	6.86	1	2008	0.05	100.00
17.25-	17.34	6.79-	6.82	0	2007	0.00	99.95
17.15-	17.24	6.75-	6.78	1	2007	0.05	99.95
17.05-	17.14	6.71-	6.74	0	2006	0.00	99.90
16.95-	17.04	6.67-	6.70	1	2006	0.05	99.90
16.85-	16.94	6.63-	6.66	3	2005	0.15	99.85
16.75-	16.84	6.59-	6.62	3	2002	0.15	99.70
16.65-	16.74	6.56-	6.58	10	1999	0.50	99.55
16.55-	16.64	6.52-	6.55	17	1989	0.85	99.05
16.45-	16.54	6.48-	6.51	5	1972	0.25	98.21
16.35-	16.44	6.44-	6.47	25	1967	1.25	97.96
16.25-	16.34	6.40-	6.43	34	1942	1.69	96.71
16.15-	16.24	6.36-	6.39	44	1908	2.19	95.02
16.05-	16.14	6.32-	6.35	48	1864	2.39	92.83
15.95-	16.04	6.28-	6.31	40	1816	1.99	90.44
15.85-	15.94	6.24-	6.27	64	1776	3.19	88.45
15.75-	15.84	6.20-	6.23	95	1712	4.73	85.26
15.65-	15.74	6.16-	6.19	119	1617	5.93	80.53
15.55-	15.64	6.12-	6.15	127	1498	6.32	74.60
15.45-	15.54	6.08-	6.11	66	1371	3.29	68.28
15.35-	15.44	6.04-	6.07	194	1305	9.66	64.99
15.25-	15.34	6.00-	6.03	170	1111	8.47	55.33
15.15-	15.24	5.96-	5.99	140	941	6.97	46.86
15.05-	15.14	5.93-	5.95	126	801	6.27	39.89
14.95-	15.04	5.89-	5.92	84	675	4.18	33.62
14.85-	14.94	5.85-	5.88	129	591	6.42	29.43
14.75-	14.84	5.81-	5.84	101	462	5.03	23.01
14.65-	14.74	5.77-	5.80	90	361	4.48	17.98
14.55-	14.64	5.73-	5.76	76	271	3.78	13.50
14.45-	14.54	5.69-	5.72	34	195	1.69	9.71
14.35-	14.44	5.65-	5.68	68	161	3.39	8.02
14.25-	14.34	5.61-	5.64	26	93	1.29	4.63
14.15-	14.24	5.57-	5.60	29	67	1.44	3.34
14.05-	14.14	5.53-	5.56	12	38	0.60	1.89
13.95-	14.04	5.49-	5.52	6	26	0.30	1.29
13.85-	13.94	5.45-	5.48	9	20	0.45	1.00
13.75-	13.84	5.41-	5.44	6	11	0.30	0.55
13.65-	13.74	5.37-	5.40	2	5	0.10	0.25
13.55-	13.64	5.33-	5.36	1	3	0.05	0.15
13.45-	13.54	5.30-	5.32	1	2	0.05	0.10
13.35-	13.44	5.26-	5.29	0	1	0.00	0.05
13.25-	13.34	5.22-	5.25	0	1	0.00	0.05
13.15-	13.24	5.18-	5.21	0	1	0.00	0.05
13.05-	13.14	5.14-	5.17	0	1	0.00	0.05
12.95-	13.04	5.10-	5.13	1	1	0.05	0.05

PERCENTILES

CENTIMETERS INCHES



16.64	99 TH	6.55
16.48	98 TH	6.49
16.37	97 TH	6.45
16.23	95 TH	6.39
16.01	90 TH	6.30
15.87	85 TH	6.25
15.75	80 TH	6.20
15.65	75 TH	6.16
15.57	70 TH	6.13
15.49	65 TH	6.10
15.41	60 TH	6.07
15.34	55 TH	6.04
15.27	50 TH	6.01
15.20	45 TH	5.98
15.13	40 TH	5.96
15.05	35 TH	5.93
14.98	30 TH	5.90
14.90	25 TH	5.86
14.80	20 TH	5.83
14.70	15 TH	5.79
14.56	10 TH	5.73
14.36	5 TH	5.65
14.23	3 RD	5.60
14.13	2 ND	5.56
13.97	1 ST	5.50

THE SUMMARY STATISTICS

....

Head Breadth: Subject sits erect, with head level. The maximum horizontal breadth of the head is measured above and behind the ears. Spreading calipers are used.

CENTIMETERS INCHES

15.28	MEAN	6.01
0.01	SE(M)	0.01
0.57	ST DEV	0.22
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.06

KURTOSIS--BETA II = 3.07

COEFFICIENT OF VARIATION = 3.74

....

SAMPLE SIZE = 2008

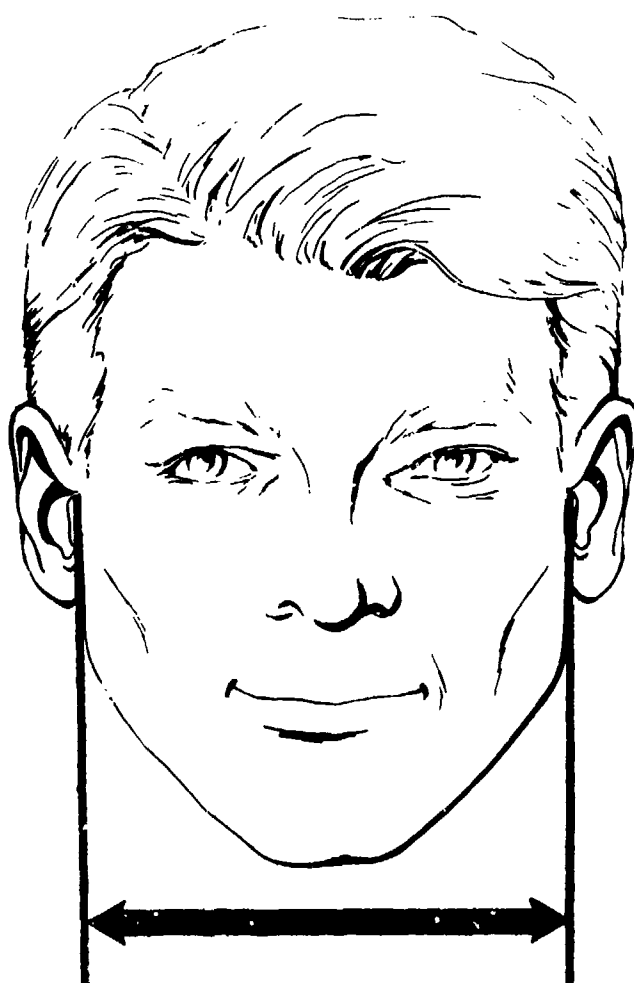
54 Bitragon Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
15.35-	15.44	6.04-	6.07	1	2008	0.05	100.00
15.25-	15.34	6.00-	6.03	0	2007	0.00	99.95
15.15-	15.24	5.96-	5.99	4	2007	0.20	99.95
15.05-	15.14	5.93-	5.95	3	2003	0.15	99.75
14.95-	15.04	5.89-	5.92	1	2000	0.05	99.60
14.85-	14.94	5.85-	5.88	6	1999	0.30	99.55
14.75-	14.84	5.81-	5.84	9	1993	0.45	99.25
14.65-	14.74	5.77-	5.80	8	1984	0.40	98.80
14.55-	14.64	5.73-	5.76	19	1976	0.95	98.41
14.45-	14.54	5.69-	5.72	18	1957	0.90	97.46
14.35-	14.44	5.65-	5.68	46	1939	2.29	96.56
14.25-	14.34	5.61-	5.64	32	1893	1.59	94.27
14.15-	14.24	5.57-	5.60	60	1861	2.99	92.68
14.05-	14.14	5.53-	5.56	75	1801	3.74	89.69
13.95-	14.04	5.49-	5.52	67	1726	3.34	85.96
13.85-	13.94	5.45-	5.48	121	1659	6.03	82.62
13.75-	13.84	5.41-	5.44	117	1538	5.83	76.59
13.65-	13.74	5.37-	5.40	149	1421	7.42	70.77
13.55-	13.64	5.33-	5.36	136	1272	6.77	63.35
13.45-	13.54	5.30-	5.32	134	1136	6.67	56.57
13.35-	13.44	5.26-	5.29	146	1002	7.27	49.90
13.25-	13.34	5.22-	5.25	129	856	6.42	42.63
13.15-	13.24	5.18-	5.21	144	727	7.17	36.21
13.05-	13.14	5.14-	5.17	125	583	6.23	29.03
12.95-	13.04	5.10-	5.13	97	458	4.83	22.81
12.85-	12.94	5.06-	5.09	100	361	4.98	17.98
12.75-	12.84	5.02-	5.05	64	261	3.19	13.00
12.65-	12.74	4.98-	5.01	57	197	2.84	9.81
12.55-	12.64	4.94-	4.97	56	140	2.79	6.97
12.45-	12.54	4.90-	4.93	23	84	1.15	4.18
12.35-	12.44	4.86-	4.89	21	61	1.05	3.04
12.25-	12.34	4.82-	4.85	8	40	0.40	1.99
12.15-	12.24	4.78-	4.81	13	32	0.65	1.59
12.05-	12.14	4.74-	4.77	8	19	0.40	0.95
11.95-	12.04	4.70-	4.73	7	11	0.35	0.55
11.85-	11.94	4.67-	4.69	1	4	0.05	0.20
11.75-	11.84	4.63-	4.66	1	3	0.05	0.15
11.65-	11.74	4.59-	4.62	0	2	0.00	0.10
11.55-	11.64	4.55-	4.58	0	2	0.00	0.10
11.45-	11.54	4.51-	4.54	1	2	0.05	0.10
11.35-	11.44	4.47-	4.50	0	1	0.00	0.05
11.25-	11.34	4.43-	4.46	1	1	0.05	0.05

54 Bitracion Breadth

PERCENTILES

CENTIMETERS		INCHES
14.78	99 TH	5.82
14.62	98 TH	5.75
14.51	97 TH	5.71
14.37	95 TH	5.66
14.16	90 TH	5.58
14.02	85 TH	5.52
13.91	80 TH	5.48
13.82	75 TH	5.44
13.74	70 TH	5.41
13.66	65 TH	5.38
13.59	60 TH	5.35
13.52	55 TH	5.32
13.45	50 TH	5.30
13.38	45 TH	5.27
13.31	40 TH	5.24
13.24	35 TH	5.21
13.17	30 TH	5.18
13.09	25 TH	5.15
13.00	20 TH	5.12
12.90	15 TH	5.08
12.76	10 TH	5.03
12.57	5 TH	4.95
12.43	3 RD	4.90
12.34	2 ND	4.86
12.18	1 ST	4.79



THE SUMMARY STATISTICS

....

Bitracion Breadth: Subject sits erect, with head level. The horizontal breadth of the head is measured from the right tracion (the cartilaginous notch at the front of the right ear) to the corresponding tracion of the left ear. Spreading calipers are used.

CENTIMETERS		INCHES
13.46	MEAN	5.30
0.01	SE(M)	0.00
0.55	ST DEV	0.22
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.05
KURTOSIS--BETA II = 3.14

COEFFICIENT OF VARIATION = 4.09

....

SAMPLE SIZE = 2008

55 Head Height

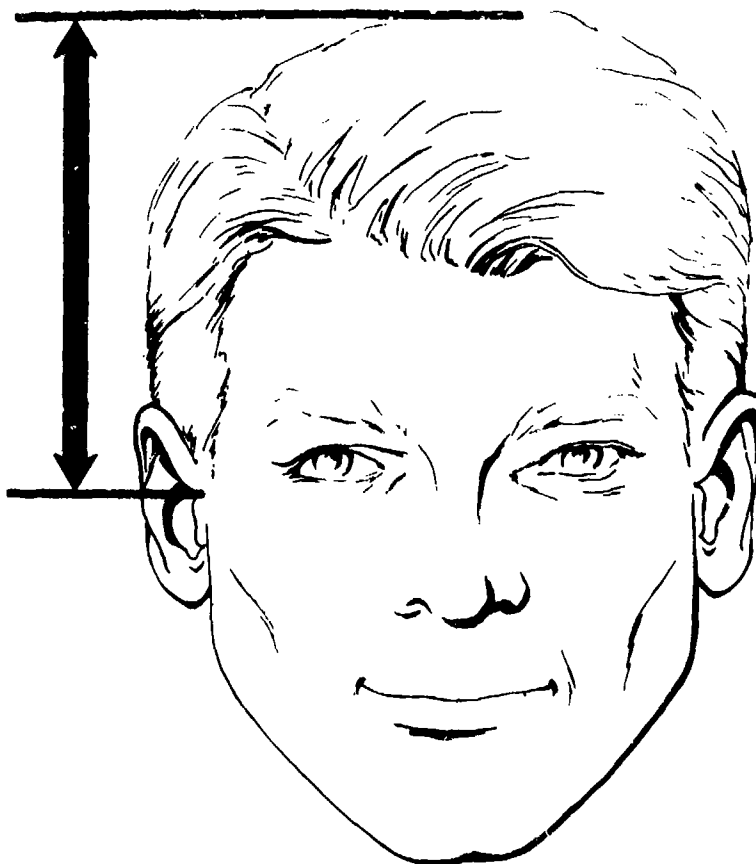
--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
15.45-	15.54	6.08-	6.11	3	2008	0.15	100.00
15.35-	15.44	6.04-	6.07	2	2005	0.10	99.85
15.25-	15.34	6.00-	6.03	2	2003	0.10	99.75
15.15-	15.24	5.96-	5.99	5	2001	0.25	99.65
15.05-	15.14	5.93-	5.95	9	1996	0.45	99.40
14.95-	15.04	5.89-	5.92	4	1987	0.20	98.95
14.85-	14.94	5.85-	5.88	11	1983	0.55	98.75
14.75-	14.84	5.81-	5.84	11	1972	0.55	98.21
14.65-	14.74	5.77-	5.80	15	1961	0.75	97.66
14.55-	14.64	5.73-	5.76	25	1946	1.25	96.91
14.45-	14.54	5.69-	5.72	25	1921	1.25	95.67
14.35-	14.44	5.65-	5.68	42	1896	2.09	94.42
14.25-	14.34	5.61-	5.64	54	1854	2.69	92.33
14.15-	14.24	5.57-	5.60	53	1800	2.64	89.64
14.05-	14.14	5.53-	5.56	82	1747	4.08	87.00
13.95-	14.04	5.49-	5.52	87	1665	4.33	82.92
13.85-	13.94	5.45-	5.48	78	1578	3.88	78.59
13.75-	13.84	5.41-	5.44	76	1500	3.78	74.70
13.65-	13.74	5.37-	5.40	97	1424	4.83	70.92
13.55-	13.64	5.33-	5.36	111	1327	5.53	66.09
13.45-	13.54	5.30-	5.32	110	1216	5.48	60.56
13.35-	13.44	5.26-	5.29	153	1106	7.62	55.08
13.25-	13.34	5.22-	5.25	97	953	4.83	47.46
13.15-	13.24	5.18-	5.21	105	856	5.23	42.63
13.05-	13.14	5.14-	5.17	134	751	6.67	37.40
12.95-	13.04	5.10-	5.13	75	617	3.74	30.73
12.85-	12.94	5.06-	5.09	100	542	4.98	26.99
12.75-	12.84	5.02-	5.05	105	442	5.23	22.01
12.65-	12.74	4.98-	5.01	66	337	3.29	16.78
12.55-	12.64	4.94-	4.97	54	271	2.69	13.50
12.45-	12.54	4.90-	4.93	45	217	2.24	10.81
12.35-	12.44	4.86-	4.89	39	172	1.94	8.57
12.25-	12.34	4.82-	4.85	42	133	2.09	6.62
12.15-	12.24	4.78-	4.81	24	91	1.20	4.53
12.05-	12.14	4.74-	4.77	22	67	1.10	3.34
11.95-	12.04	4.70-	4.73	10	45	0.50	2.24
11.85-	11.94	4.67-	4.69	12	35	0.60	1.74
11.75-	11.84	4.63-	4.66	9	23	0.45	1.15
11.65-	11.74	4.59-	4.62	5	14	0.25	0.70
11.55-	11.64	4.55-	4.58	4	9	0.20	0.45
11.45-	11.54	4.51-	4.54	0	5	0.00	0.25
11.35-	11.44	4.47-	4.50	0	5	0.00	0.25
11.25-	11.34	4.43-	4.46	1	5	0.05	0.25
11.15-	11.24	4.39-	4.42	2	4	0.10	0.20
11.05-	11.14	4.35-	4.38	1	2	0.05	0.10
10.95-	11.04	4.31-	4.34	0	1	0.00	0.05
10.85-	10.94	4.27-	4.30	1	1	0.05	0.05

PERCENTILES

CENTIMETERS

INCHES

15.04	99 TH	5.92
14.82	98 TH	5.84
14.69	97 TH	5.78
14.52	95 TH	5.71
14.26	90 TH	5.61
14.08	85 TH	5.54
13.95	80 TH	5.49
13.84	75 TH	5.45
13.73	70 TH	5.41
13.64	65 TH	5.37
13.55	60 TH	5.34
13.47	55 TH	5.30
13.38	50 TH	5.27
13.30	45 TH	5.23
13.21	40 TH	5.20
13.12	35 TH	5.17
13.03	30 TH	5.13
12.93	25 TH	5.09
12.81	20 TH	5.04
12.68	15 TH	4.99
12.51	10 TH	4.93
12.27	5 TH	4.83
12.11	3 RD	4.77
12.00	2 ND	4.72
11.83	1 ST	4.66

**Head Height (Tragion-Vertex Height):**

Subject sits erect, with head level. Head height is measured as the vertical distance from the cartilaginous notch (tragion) at the front of the right ear to the top of the head (vertex). An anthropometer is used.

THE SUMMARY STATISTICS

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CENTIMETERS

INCHES

13.38	MEAN	5.27
0.02	SE(M)	0.01
0.68	ST DEV	0.27
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.03

KURTOSIS--BETA II = 3.02

COEFFICIENT OF VARIATION = 5.10

....

SAMPLE SIZE = 2008

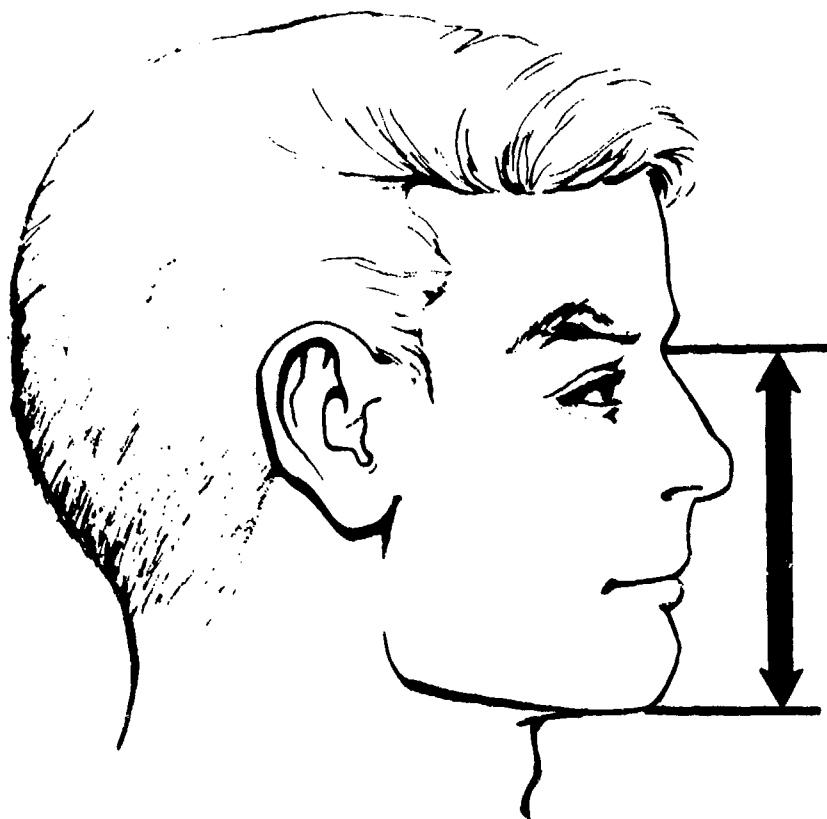
58 Fane Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
14.25-	14.34	5.61-	5.64	1	2008	0.05	100.00
14.15-	14.24	5.57-	5.60	0	2007	0.00	99.95
14.05-	14.14	5.53-	5.56	2	2007	0.10	99.95
13.95-	14.04	5.49-	5.52	1	2005	0.05	99.85
13.85-	13.94	5.45-	5.48	3	2004	0.15	99.80
13.75-	13.84	5.41-	5.44	2	2001	0.10	99.65
13.65-	13.74	5.37-	5.40	6	1999	0.30	99.55
13.55-	13.64	5.33-	5.36	1	1993	0.05	99.25
13.45-	13.54	5.30-	5.32	7	1992	0.35	99.20
13.35-	13.44	5.26-	5.29	11	1985	0.55	98.85
13.25-	13.34	5.22-	5.25	20	1974	1.00	98.31
13.15-	13.24	5.18-	5.21	31	1954	1.54	97.31
13.05-	13.14	5.14-	5.17	31	1923	1.54	95.77
12.95-	13.04	5.10-	5.13	31	1892	1.54	94.22
12.85-	12.94	5.06-	5.09	42	1851	2.09	92.68
12.75-	12.84	5.02-	5.05	68	1819	3.39	90.59
12.65-	12.74	4.98-	5.01	73	1751	3.64	87.20
12.55-	12.64	4.94-	4.97	77	1678	3.83	83.57
12.45-	12.54	4.90-	4.93	84	1601	4.18	79.73
12.35-	12.44	4.86-	4.89	129	1517	6.42	75.55
12.25-	12.34	4.82-	4.85	115	1388	5.73	69.12
12.15-	12.24	4.78-	4.81	124	1273	6.18	63.40
12.05-	12.14	4.74-	4.77	110	1149	5.48	57.22
11.95-	12.04	4.70-	4.73	95	1039	4.73	51.74
11.85-	11.94	4.67-	4.69	158	944	7.87	47.01
11.75-	11.84	4.63-	4.66	120	786	5.98	39.14
11.65-	11.74	4.59-	4.62	109	666	5.43	33.17
11.55-	11.64	4.55-	4.58	92	557	4.58	27.74
11.45-	11.54	4.51-	4.54	102	465	5.08	23.16
11.35-	11.44	4.47-	4.50	79	363	3.93	18.08
11.25-	11.34	4.43-	4.46	56	284	2.79	14.14
11.15-	11.24	4.39-	4.42	54	228	2.69	11.35
11.05-	11.14	4.35-	4.38	34	174	1.69	8.67
10.95-	11.04	4.31-	4.34	28	140	1.39	6.97
10.85-	10.94	4.27-	4.30	35	112	1.74	5.58
10.75-	10.84	4.23-	4.26	22	77	1.10	3.83
10.65-	10.74	4.19-	4.22	21	55	1.05	2.74
10.55-	10.64	4.15-	4.18	11	34	0.55	1.69
10.45-	10.54	4.11-	4.14	5	23	0.25	1.15
10.35-	10.44	4.07-	4.10	5	18	0.25	0.90
10.25-	10.34	4.04-	4.06	4	13	0.20	0.65
10.15-	10.24	4.00-	4.03	3	9	0.15	0.45
10.05-	10.14	3.96-	3.99	1	6	0.05	0.30
9.95-	10.04	3.92-	3.95	2	5	0.10	0.25
9.85-	9.94	3.88-	3.91	2	3	0.10	0.15
9.75-	9.84	3.84-	3.87	1	1	0.05	0.05

PERCENTILES

CENTIMETERS

INCHES



13.50	99 TH	5.31
13.33	98 TH	5.25
13.22	97 TH	5.21
13.07	95 TH	5.15
12.84	90 TH	5.06
12.69	85 TH	5.00
12.56	80 TH	4.95
12.46	75 TH	4.90
12.36	70 TH	4.87
12.27	65 TH	4.83
12.19	60 TH	4.80
12.11	55 TH	4.77
12.02	50 TH	4.73
11.94	45 TH	4.70
11.86	40 TH	4.67
11.78	35 TH	4.64
11.69	30 TH	4.60
11.59	25 TH	4.56
11.48	20 TH	4.52
11.35	15 TH	4.47
11.19	10 TH	4.41
10.95	5 TH	4.31
10.79	3 RD	4.25
10.67	2 ND	4.20
10.48	1 ST	4.13

Face Length (Menton-Nasal Root Length): Subject sits erect, with head level. Face Length is measured as the vertical distance from the tip of the chin (menton) to the nasal root depression between the eyes. Sliding calipers are used.

THE SUMMARY STATISTICS

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CENTIMETERS

INCHES

12.02	MEAN	4.73
0.01	SE(M)	0.01
0.65	ST DEV	0.25
0.01	SE(SD)	0.00

.....

SYMMETRY--BETA I = -0.04

KURTOSIS--BETA II = 3.12

COEFFICIENT OF VARIATION = 5.39

.....

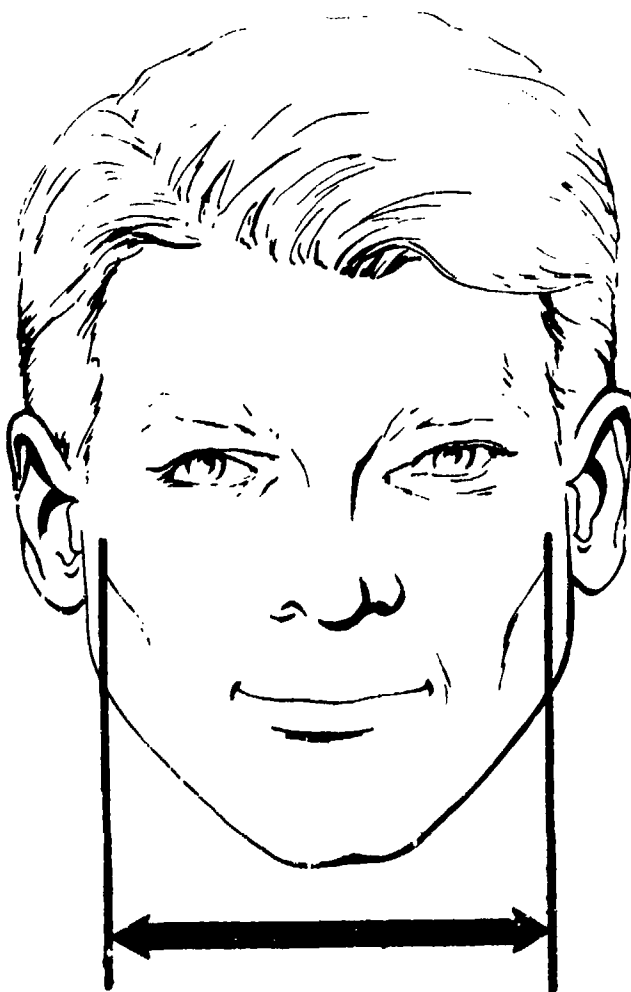
SAMPLE SIZE = 2008

57 Face Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FW
15.85-	15.94	6.24-	6.27	1	2008	0.05	100.00
15.75-	15.84	6.20-	6.23	1	2007	0.05	99.95
15.65-	15.74	6.16-	6.19	4	2006	0.20	99.90
15.55-	15.64	6.12-	6.15	2	2002	0.10	99.70
15.45-	15.54	6.08-	6.11	2	2000	0.10	99.60
15.35-	15.44	6.04-	6.07	4	1998	0.20	99.50
15.25-	15.34	6.00-	6.03	10	1994	0.50	99.30
15.15-	15.24	5.96-	5.99	10	1984	0.50	98.80
15.05-	15.14	5.93-	5.95	16	1974	0.80	98.31
14.95-	15.04	5.89-	5.92	16	1958	0.80	97.51
14.85-	14.94	5.85-	5.88	32	1942	1.59	96.71
14.75-	14.84	5.81-	5.84	37	1910	1.84	95.12
14.65-	14.74	5.77-	5.80	69	1873	3.44	93.28
14.55-	14.64	5.73-	5.76	80	1804	3.98	89.84
14.45-	14.54	5.69-	5.72	66	1724	3.29	85.86
14.35-	14.44	5.65-	5.68	131	1658	6.52	82.57
14.25-	14.34	5.61-	5.64	119	1527	5.93	76.05
14.15-	14.24	5.57-	5.60	159	1408	7.92	70.12
14.05-	14.14	5.53-	5.56	134	1249	6.67	62.20
13.95-	14.04	5.49-	5.52	95	1115	4.73	55.53
13.85-	13.94	5.45-	5.48	161	1020	8.02	50.80
13.75-	13.84	5.41-	5.44	155	859	7.72	42.78
13.65-	13.74	5.37-	5.40	177	704	8.81	35.06
13.55-	13.64	5.33-	5.36	115	527	5.73	26.25
13.45-	13.54	5.30-	5.32	52	412	2.59	20.52
13.35-	13.44	5.26-	5.29	116	360	5.78	17.93
13.25-	13.34	5.22-	5.25	70	244	3.49	12.15
13.15-	13.24	5.18-	5.21	64	174	3.19	8.67
13.05-	13.14	5.14-	5.17	28	110	1.39	5.48
12.95-	13.04	5.10-	5.13	16	82	0.80	4.08
12.85-	12.94	5.06-	5.09	30	66	1.49	3.29
12.75-	12.84	5.02-	5.05	12	36	0.60	1.79
12.65-	12.74	4.98-	5.01	9	24	0.45	1.20
12.55-	12.64	4.94-	4.97	7	15	0.35	0.75
12.45-	12.54	4.90-	4.93	3	8	0.15	0.40
12.35-	12.44	4.86-	4.89	3	5	0.15	0.25
12.25-	12.34	4.82-	4.85	0	2	0.00	0.10
12.15-	12.24	4.78-	4.81	2	2	0.10	0.10

PERCENTILES

CENTIMETERS		INCHES
15.28	99 TH	6.02
15.11	98 TH	5.95
15.00	97 TH	5.91
14.86	95 TH	5.85
14.65	90 TH	5.77
14.52	85 TH	5.72
14.41	80 TH	5.67
14.32	75 TH	5.64
14.24	70 TH	5.61
14.17	65 TH	5.58
14.10	60 TH	5.55
14.03	55 TH	5.52
13.97	50 TH	5.50
13.90	45 TH	5.47
13.83	40 TH	5.45
13.76	35 TH	5.42
13.69	30 TH	5.39
13.61	25 TH	5.36
13.52	20 TH	5.32
13.42	15 TH	5.28
13.28	10 TH	5.23
13.09	5 TH	5.15
12.96	3 RD	5.10
12.86	2 ND	5.06
12.71	1 ST	5.00



THE SUMMARY STATISTICS

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Face Breadth (Bizygomatic Breadth):

Subject sits erect, with head level. The maximum horizontal breadth of the face is measured between the lateral projections of the cheek bones (zygomatic arches). Spreading calipers are used

CENTIMETERS		INCHES
13.97	MEAN	5.50
0.01	SE(M)	0.00
0.54	ST DEV	0.21
0.01	SE(SD)	0.00

....

SYMMETRY--BETA 1 = 0.07

KURTOSIS--BETA 11 = 2.15

COEFFICIENT OF VARIATION = 3.86

....

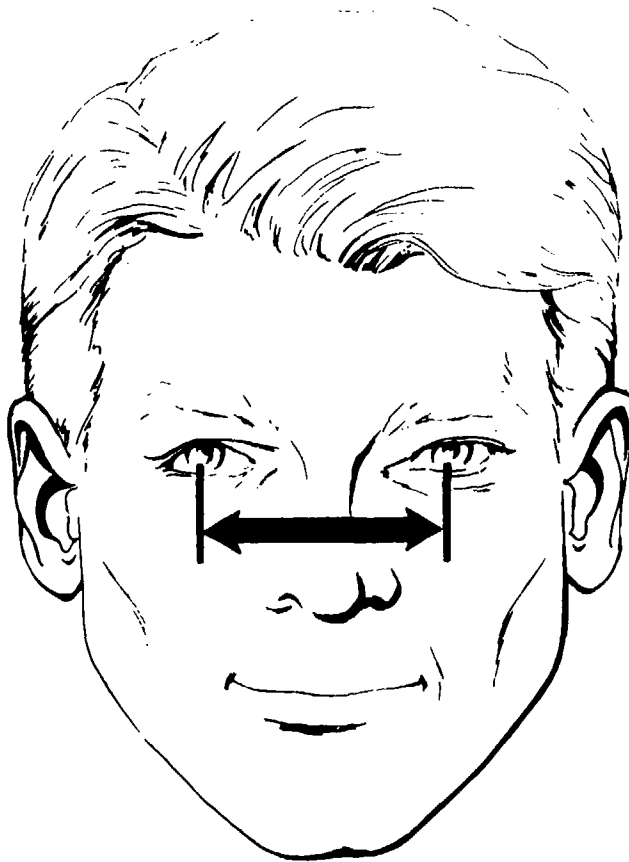
SAMPLE SIZE = 2000

58 Interpupillary Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
7.25-	7.34	2.85-	2.88	1	2008	0.05	100.00
7.15-	7.24	2.82-	2.84	3	2007	0.15	99.95
7.05-	7.14	2.78-	2.81	10	2004	0.50	99.80
6.95-	7.04	2.74-	2.77	11	1994	0.55	99.30
6.85-	6.94	2.70-	2.73	19	1983	0.95	98.75
6.75-	6.84	2.66-	2.69	35	1964	1.74	97.81
6.65-	6.74	2.62-	2.65	75	1929	3.74	96.07
6.55-	6.64	2.58-	2.61	87	1854	4.33	92.33
6.45-	6.54	2.54-	2.57	97	1767	4.83	88.00
6.35-	6.44	2.50-	2.53	143	1670	7.12	83.17
6.25-	6.34	2.46-	2.49	180	1527	8.96	76.05
6.15-	6.24	2.42-	2.45	227	1347	11.30	67.08
6.05-	6.14	2.38-	2.41	183	1120	9.11	55.78
5.95-	6.04	2.34-	2.37	175	937	8.72	46.66
5.85-	5.94	2.30-	2.33	176	762	8.76	37.95
5.75-	5.84	2.26-	2.29	178	586	8.86	29.18
5.65-	5.74	2.22-	2.25	142	408	7.07	20.32
5.55-	5.64	2.19-	2.21	98	266	4.88	13.25
5.45-	5.54	2.15-	2.18	62	168	3.09	8.37
5.35-	5.44	2.11-	2.14	52	106	2.59	5.28
5.25-	5.34	2.07-	2.10	29	54	1.44	2.69
5.15-	5.24	2.03-	2.06	12	25	0.60	1.25
5.05-	5.14	1.99-	2.02	9	13	0.45	0.65
4.95-	5.04	1.95-	1.98	2	4	0.10	0.20
4.85-	4.94	1.91-	1.94	1	2	0.05	0.10
4.75-	4.84	1.87-	1.90	1	1	0.05	0.05

PERCENTILES

CENTIMETERS		INCHES
6.99	99 TH	2.75
6.88	98 TH	2.71
6.81	97 TH	2.68
6.72	95 TH	2.65
6.58	90 TH	2.59
6.49	85 TH	2.55
6.41	80 TH	2.52
6.35	75 TH	2.50
6.29	70 TH	2.47
6.23	65 TH	2.45
6.18	60 TH	2.43
6.13	55 TH	2.41
6.08	50 TH	2.39
6.03	45 TH	2.37
5.98	40 TH	2.35
5.93	35 TH	2.33
5.87	30 TH	2.31
5.81	25 TH	2.29
5.75	20 TH	2.26
5.67	15 TH	2.23
5.58	10 TH	2.20
5.44	5 TH	2.14
5.36	3 RD	2.11
5.30	2 ND	2.09
5.21	1 ST	2.05



THE SUMMARY STATISTICS

....

Interpupillary Breadth: Subject sits erect, with head level. The distance between the centers of the pupils of the eyes is measured. Sliding calipers are used.

CENTIMETERS		INCHES
6.08	MEAN	2.39
0.01	SE(M)	0.00
0.39	ST DEV	0.15
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.04
 KURTOSIS--BETA II = 2.81
 COEFFICIENT OF VARIATION = 6.38

....

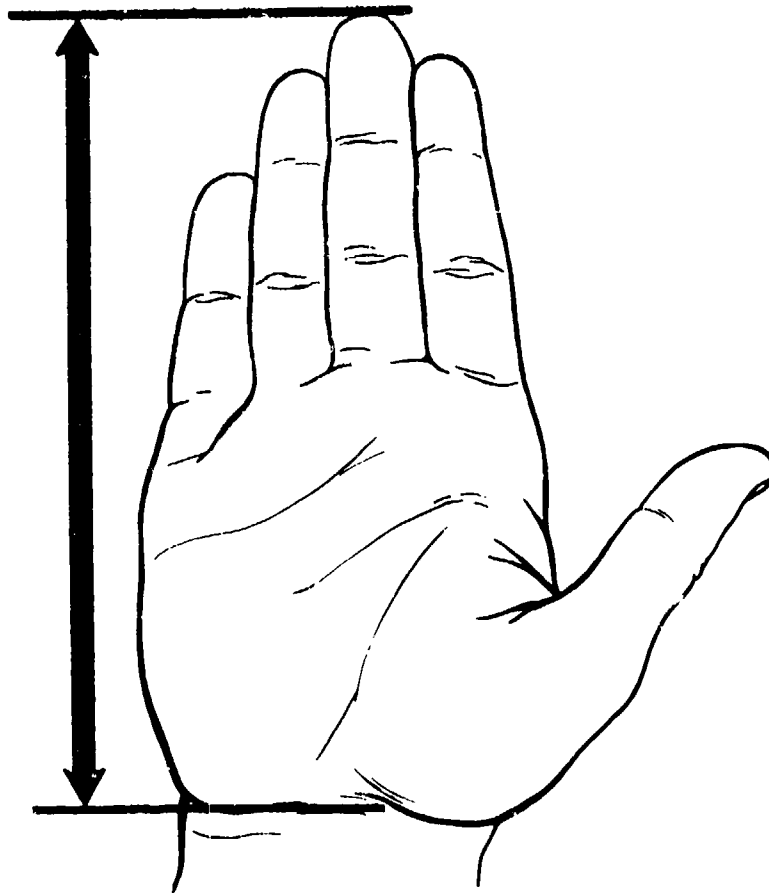
SAMPLE SIZE = 2008

59 Hand Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
22.15-	22.34	8.72-	8.79	1	2008	0.05	100.00
21.95-	22.14	8.64-	8.71	3	2007	0.15	99.95
21.75-	21.94	8.56-	8.63	3	2004	0.15	99.80
21.55-	21.74	8.48-	8.55	3	2001	0.15	99.65
21.35-	21.54	8.41-	8.47	11	1998	0.55	99.50
21.15-	21.34	8.33-	8.40	5	1987	0.25	98.95
20.95-	21.14	8.25-	8.32	18	1982	0.90	98.71
20.75-	20.94	8.17-	8.24	21	1964	1.05	97.81
20.55-	20.74	8.09-	8.16	43	1943	2.14	96.76
20.35-	20.54	8.01-	8.08	38	1900	1.89	94.62
20.15-	20.34	7.93-	8.00	56	1862	2.79	92.73
19.95-	20.14	7.85-	7.92	60	1806	2.99	89.94
19.75-	19.94	7.78-	7.84	109	1746	5.43	86.95
19.55-	19.74	7.70-	7.77	119	1637	5.93	81.52
19.35-	19.54	7.62-	7.69	129	1518	6.42	75.60
19.15-	19.34	7.54-	7.61	167	1389	8.32	69.17
18.95-	19.14	7.46-	7.53	168	1222	8.37	60.86
18.75-	18.94	7.38-	7.45	158	1054	7.87	52.49
18.55-	18.74	7.30-	7.37	189	896	9.41	44.62
18.35-	18.54	7.22-	7.29	167	707	8.32	35.21
18.15-	18.34	7.15-	7.21	154	540	7.67	26.89
17.95-	18.14	7.07-	7.14	106	386	5.28	19.22
17.75-	17.94	6.99-	7.06	113	280	5.63	13.94
17.55-	17.74	6.91-	6.98	61	167	3.04	8.32
17.35-	17.54	6.83-	6.90	33	106	1.64	5.28
17.15-	17.34	6.75-	6.82	26	73	1.29	3.64
16.95-	17.14	6.67-	6.74	14	47	0.70	2.34
16.75-	16.94	6.59-	6.66	19	33	0.95	1.64
16.55-	16.74	6.52-	6.58	3	14	0.15	0.70
16.35-	16.54	6.44-	6.51	8	11	0.40	0.55
16.15-	16.34	6.36-	6.43	1	3	0.05	0.15
15.95-	16.14	6.28-	6.35	1	2	0.05	0.10
15.75-	15.94	6.20-	6.27	0	1	0.00	0.05
15.55-	15.74	6.12-	6.19	0	1	0.00	0.05
15.35-	15.54	6.04-	6.11	0	1	0.00	0.05
15.15-	15.34	5.96-	6.03	1	1	0.05	0.05

PERCENTILES

CENTIMETERS		INCHES
21.34	99 TH	8.40
21.02	98 TH	8.28
20.82	97 TH	8.20
20.55	95 TH	8.09
20.15	90 TH	7.93
19.89	85 TH	7.83
19.69	80 TH	7.75
19.52	75 TH	7.69
19.37	70 TH	7.63
19.24	65 TH	7.58
19.12	60 TH	7.53
19.00	55 TH	7.48
18.89	50 TH	7.44
18.78	45 TH	7.39
18.66	40 TH	7.35
18.55	35 TH	7.30
18.43	30 TH	7.26
18.31	25 TH	7.21
18.17	20 TH	7.15
18.00	15 TH	7.09
17.79	10 TH	7.01
17.48	5 TH	6.88
17.26	3 RD	6.79
17.09	2 ND	6.73
16.80	1 ST	6.62



Hand Length: Subject sits, with his right hand and fingers extended, palm up. The length of the right hand is measured from the wrist crease to the tip of the middle finger. Sliding calipers are used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
18.94	MEAN	7.46
0.02	SE(M)	0.01
0.93	ST DEV	0.37
0.01	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.22
 KURTOSIS--BETA II = 3.27
 COEFFICIENT OF VARIATION = 4.91

....

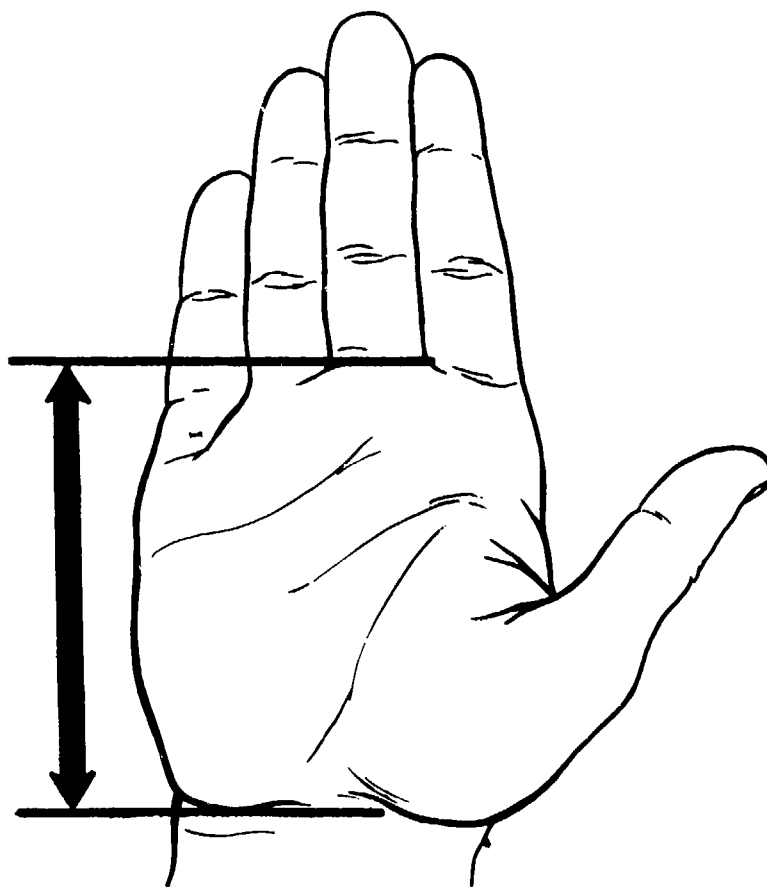
SAMPLE SIZE = 2008

60 Palm Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
12.45-	12.54	4.90-	4.93	1	2008	0.05	100.00
12.35-	12.44	4.86-	4.89	3	2007	0.15	99.95
12.25-	12.34	4.82-	4.85	3	2004	0.15	99.80
12.15-	12.24	4.78-	4.81	5	2001	0.25	99.65
12.05-	12.14	4.74-	4.77	9	1996	0.45	99.40
11.95-	12.04	4.70-	4.73	10	1987	0.50	98.95
11.85-	11.94	4.67-	4.69	11	1977	0.55	98.46
11.75-	11.84	4.63-	4.66	17	1966	0.85	97.91
11.65-	11.74	4.59-	4.62	16	1949	0.80	97.06
11.55-	11.64	4.55-	4.58	28	1933	1.39	96.26
11.45-	11.54	4.51-	4.54	20	1905	1.00	94.87
11.35-	11.44	4.47-	4.50	46	1885	2.29	93.87
11.25-	11.34	4.43-	4.46	58	1839	2.89	91.58
11.15-	11.24	4.39-	4.42	59	1781	2.94	88.70
11.05-	11.14	4.35-	4.38	92	1722	4.58	85.76
10.95-	11.04	4.31-	4.34	71	1630	3.54	81.18
10.85-	10.94	4.27-	4.30	133	1559	6.62	77.64
10.75-	10.84	4.23-	4.26	99	1426	4.93	71.02
10.65-	10.74	4.19-	4.22	136	1327	6.77	66.09
10.55-	10.64	4.15-	4.18	146	1191	7.27	59.31
10.45-	10.54	4.11-	4.14	112	1045	5.58	52.04
10.35-	10.44	4.07-	4.10	154	933	7.67	46.46
10.25-	10.34	4.04-	4.06	123	779	6.13	38.79
10.15-	10.24	4.00-	4.03	149	656	7.42	32.67
10.05-	10.14	3.96-	3.99	119	507	5.93	25.25
9.95-	10.04	3.92-	3.95	83	388	4.13	19.32
9.85-	9.94	3.88-	3.91	78	305	3.88	15.19
9.75-	9.84	3.84-	3.87	62	227	3.09	11.30
9.65-	9.74	3.80-	3.83	39	165	1.94	8.22
9.55-	9.64	3.76-	3.79	43	126	2.14	6.27
9.45-	9.54	3.72-	3.75	23	83	1.15	4.13
9.35-	9.44	3.68-	3.71	17	60	0.85	2.99
9.25-	9.34	3.64-	3.67	11	43	0.55	2.14
9.15-	9.24	3.60-	3.63	13	32	0.65	1.59
9.05-	9.14	3.56-	3.59	6	19	0.30	0.95
8.95-	9.04	3.52-	3.55	3	13	0.15	0.65
8.85-	8.94	3.48-	3.51	3	10	0.15	0.50
8.75-	8.84	3.45-	3.47	3	7	0.15	0.35
8.65-	8.74	3.41-	3.44	2	4	0.10	0.20
8.55-	8.64	3.37-	3.40	1	2	0.05	0.10
8.45-	8.54	3.33-	3.36	0	1	0.00	0.05
8.35-	8.44	3.29-	3.32	0	1	0.00	0.05
8.25-	8.34	3.25-	3.28	1	1	0.05	0.05

PERCENTILES

CENTIMETERS		INCHES
12.07	99 TH	4.75
11.86	98 TH	4.67
11.73	97 TH	4.62
11.56	95 TH	4.55
11.31	90 TH	4.45
11.14	85 TH	4.39
11.02	80 TH	4.34
10.91	75 TH	4.30
10.82	70 TH	4.26
10.74	65 TH	4.23
10.66	60 TH	4.20
10.58	55 TH	4.17
10.51	50 TH	4.14
10.44	45 TH	4.11
10.37	40 TH	4.08
10.30	35 TH	4.05
10.22	30 TH	4.02
10.14	25 TH	3.99
10.05	20 TH	3.96
9.94	15 TH	3.91
9.81	10 TH	3.86
9.59	5 TH	3.78
9.45	3 RD	3.72
9.34	2 ND	3.68
9.15	1 ST	3.60



Palm Length: Subject sits, with his right hand and fingers extended, palm up. The length of the palm of the right hand is measured from the wrist crease to the crease at the base of the middle finger. Sliding calipers are used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
10.53	MEAN	4.15
0.01	SE(M)	0.01
0.59	ST DEV	0.23
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.14
 KURTOSIS--BETA II = 3.29
 COEFFICIENT OF VARIATION = 5.64

....

SAMPLE SIZE = 2008

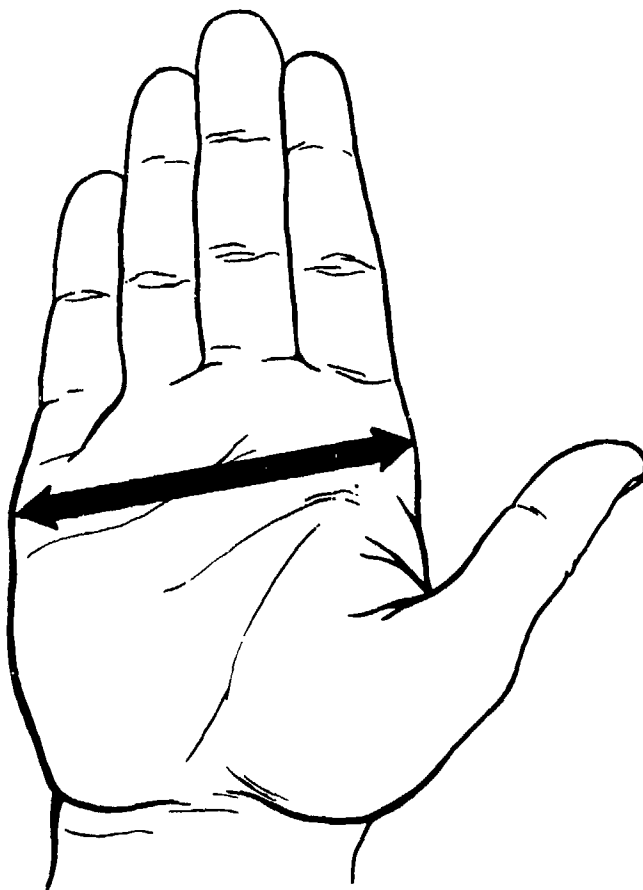
61 Hand Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
10.85-	10.94	4.27-	4.30	1	2008	0.05	100.00
10.75-	10.84	4.23-	4.26	0	2007	0.00	99.95
10.65-	10.74	4.19-	4.22	0	2007	0.00	99.95
10.55-	10.64	4.15-	4.18	0	2007	0.00	99.95
10.45-	10.54	4.11-	4.14	3	2007	0.15	99.95
10.35-	10.44	4.07-	4.10	1	2004	0.05	99.80
10.25-	10.34	4.04-	4.06	1	2003	0.05	99.75
10.15-	10.24	4.00-	4.03	1	2002	0.05	99.70
10.05-	10.14	3.96-	3.99	2	2001	0.10	99.65
9.95-	10.04	3.92-	3.95	8	1999	0.40	99.55
9.85-	9.94	3.88-	3.91	13	1991	0.65	99.15
9.75-	9.84	3.84-	3.87	21	1978	1.05	98.51
9.65-	9.74	3.80-	3.83	41	1957	2.04	97.46
9.55-	9.64	3.76-	3.79	46	1916	2.29	95.42
9.45-	9.54	3.72-	3.75	49	1870	2.44	93.13
9.35-	9.44	3.68-	3.71	73	1821	3.64	90.69
9.25-	9.34	3.64-	3.67	126	1748	6.27	87.05
9.15-	9.24	3.60-	3.63	126	1622	6.27	80.78
9.05-	9.14	3.56-	3.59	135	1496	6.72	74.50
8.95-	9.04	3.52-	3.55	157	1361	7.82	67.78
8.85-	8.94	3.48-	3.51	179	1204	8.91	59.96
8.75-	8.84	3.45-	3.47	179	1025	8.91	51.05
8.65-	8.74	3.41-	3.44	220	846	10.96	42.13
8.55-	8.64	3.37-	3.40	149	626	7.42	31.18
8.45-	8.54	3.33-	3.36	123	477	6.13	23.75
8.35-	8.44	3.29-	3.32	104	354	5.18	17.63
8.25-	8.34	3.25-	3.28	89	250	4.43	12.45
8.15-	8.24	3.21-	3.24	64	161	3.19	8.02
8.05-	8.14	3.17-	3.20	48	97	2.39	4.83
7.95-	8.04	3.13-	3.16	29	49	1.44	2.44
7.85-	7.94	3.09-	3.12	9	20	0.45	1.00
7.75-	7.84	3.05-	3.08	6	11	0.30	0.55
7.65-	7.74	3.01-	3.04	5	5	0.25	0.25

61 Hand Breadth

PERCENTILES

CENTIMETERS		INCHES
9.93	99 TH	3.91
9.80	98 TH	3.86
9.72	97 TH	3.83
9.61	95 TH	3.78
9.44	90 TH	3.72
9.32	85 TH	3.67
9.23	80 TH	3.63
9.15	75 TH	3.60
9.08	70 TH	3.58
9.02	65 TH	3.55
8.96	60 TH	3.53
8.90	55 TH	3.51
8.85	50 TH	3.48
8.79	45 TH	3.46
8.73	40 TH	3.44
8.67	35 TH	3.42
8.61	30 TH	3.39
8.55	25 TH	3.37
8.48	20 TH	3.34
8.40	15 TH	3.31
8.30	10 TH	3.27
8.17	5 TH	3.21
8.08	3 RD	3.18
8.02	2 ND	3.16
7.94	1 ST	3.13



Hand Breadth: Subject sits, with his right hand and fingers extended, palm up. The breadth of the hand is measured at the level of the knuckles (distal ends of the metacarpal bones). Sliding calipers are used.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
8.86	MEAN	3.49
0.01	SE(M)	0.00
0.44	ST DEV	0.17
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I		= 0.26
KURTOSIS--BETA II		= 3.17
COEFFICIENT OF VARIATION		= 4.98
	
SAMPLE SIZE		= 2008

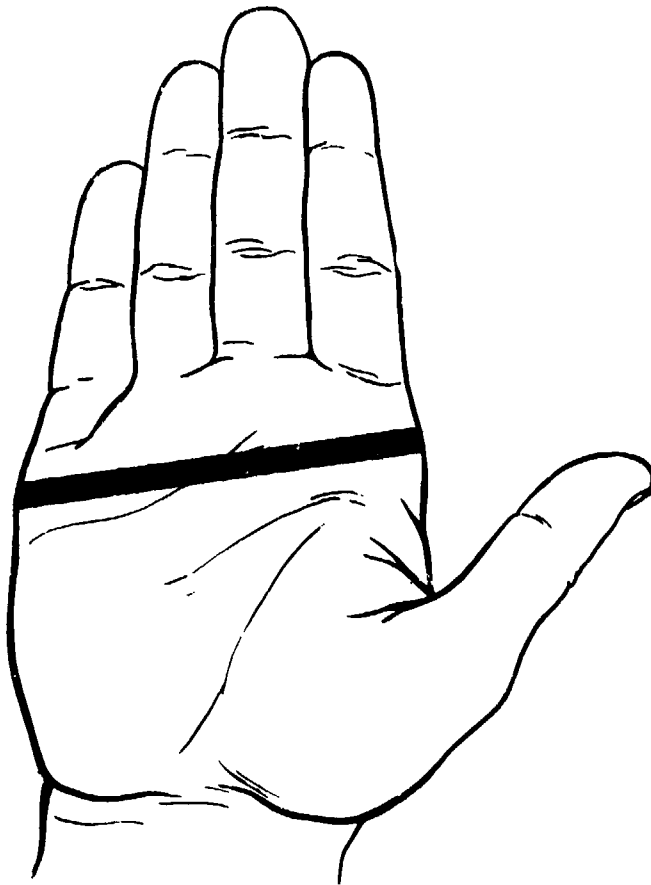
62 Hand Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
25.45-	25.64	10.02-	10.09	3	2008	0.15	100.00
25.25-	25.44	9.94-	10.01	3	2005	0.15	99.85
25.05-	25.24	9.86-	9.93	1	2002	0.05	99.70
24.85-	25.04	9.78-	9.85	3	2001	0.15	99.65
24.65-	24.84	9.70-	9.77	3	1998	0.15	99.50
24.45-	24.64	9.63-	9.69	4	1995	0.20	99.35
24.25-	24.44	9.55-	9.62	7	1991	0.35	99.15
24.05-	24.24	9.47-	9.54	7	1984	0.35	98.80
23.85-	24.04	9.39-	9.46	15	1977	0.75	98.46
23.65-	23.84	9.31-	9.38	39	1962	1.94	97.71
23.45-	23.64	9.23-	9.30	47	1923	2.34	95.77
23.25-	23.44	9.15-	9.22	33	1876	1.64	93.43
23.05-	23.24	9.07-	9.14	56	1843	2.79	91.78
22.85-	23.04	9.00-	9.06	59	1787	2.94	88.99
22.65-	22.84	8.92-	8.99	84	1728	4.18	86.06
22.45-	22.64	8.84-	8.91	104	1644	5.18	81.87
22.25-	22.44	8.76-	8.83	108	1540	5.38	76.69
22.05-	22.24	8.68-	8.75	153	1432	7.62	71.31
21.85-	22.04	8.60-	8.67	127	1279	6.32	63.70
21.65-	21.84	8.52-	8.59	193	1152	9.61	57.37
21.45-	21.64	8.45-	8.51	124	959	6.18	47.76
21.25-	21.44	8.37-	8.44	128	835	6.37	41.58
21.05-	21.24	8.29-	8.36	121	707	6.03	35.21
20.85-	21.04	8.21-	8.28	112	586	5.58	29.18
20.65-	20.84	8.13-	8.20	123	474	6.13	23.61
20.45-	20.64	8.05-	8.12	68	351	3.39	17.48
20.25-	20.44	7.97-	8.04	80	283	3.98	14.09
20.05-	20.24	7.89-	7.96	70	203	3.49	10.11
19.85-	20.04	7.82-	7.88	47	133	2.34	6.62
19.65-	19.84	7.74-	7.81	31	86	1.54	4.28
19.45-	19.64	7.66-	7.73	16	55	0.80	2.74
19.25-	19.44	7.58-	7.65	22	39	1.10	1.94
19.05-	19.24	7.50-	7.57	9	17	0.45	0.85
18.85-	19.04	7.42-	7.49	2	8	0.10	0.40
18.65-	18.84	7.34-	7.41	1	6	0.05	0.30
18.45-	18.64	7.26-	7.33	1	5	0.05	0.25
18.25-	18.44	7.19-	7.25	1	4	0.05	0.20
18.05-	18.24	7.11-	7.18	3	3	0.15	0.15

62 Hand Circumference

PERCENTILES

CENTIMETERS		INCHES
24.34	99 TH	9.58
24.00	98 TH	9.45
23.79	97 TH	9.36
23.51	95 TH	9.26
23.09	90 TH	9.09
22.82	85 TH	8.98
22.60	80 TH	8.90
22.41	75 TH	8.82
22.24	70 TH	8.76
22.09	65 TH	8.70
21.94	60 TH	8.64
21.80	55 TH	8.58
21.66	50 TH	8.53
21.52	45 TH	8.47
21.38	40 TH	8.42
21.24	35 TH	8.36
21.08	30 TH	8.30
20.92	25 TH	8.23
20.73	20 TH	8.16
20.52	15 TH	8.08
20.26	10 TH	7.98
19.89	5 TH	7.83
19.66	3 RD	7.74
19.50	2 ND	7.68
19.27	1 ST	7.59



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
21.68	MEAN	8.53
0.02	SE(M)	0.01
1.11	ST DEV	0.44
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I	=	0.14
KURTOSIS--BETA II	=	3.10
COEFFICIENT OF VARIATION	=	5.10

....

SAMPLE SIZE = 2008

Hand Circumference: Subject sits, with his right hand and fingers extended, palm up. The maximum circumference of the hand is measured at the level of the knuckles (distal ends of the metacarpal bones). A steel tape is used.

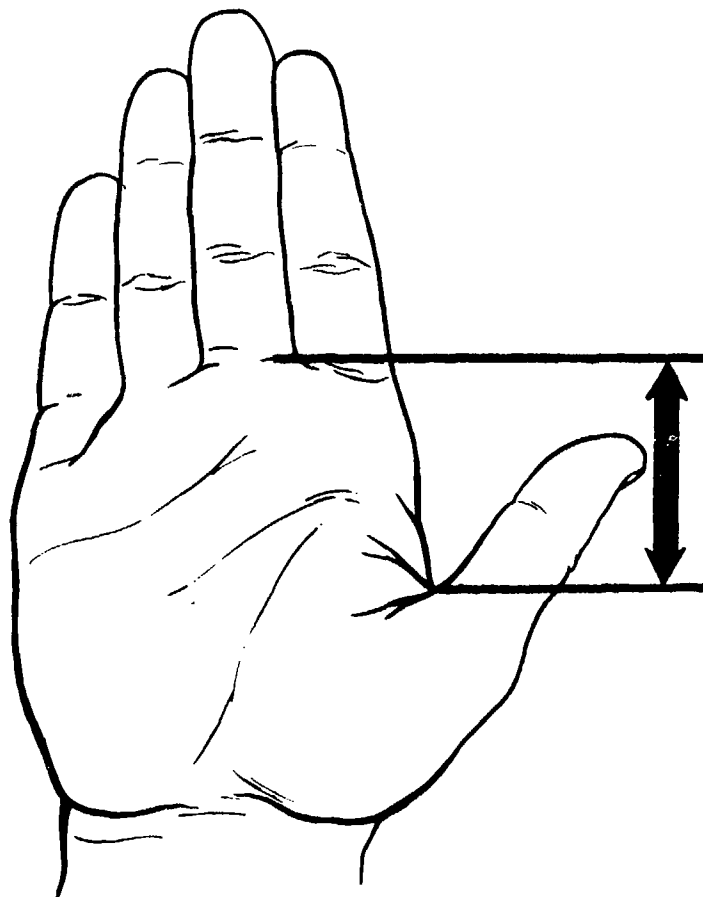
63 Thumb Crotch Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
6.85-	6.94	2.70-	2.73	2	2008	0.10	100.00
6.75-	6.84	2.66-	2.69	3	2006	0.15	99.90
6.65-	6.74	2.62-	2.65	1	2003	0.05	99.75
6.55-	6.64	2.58-	2.61	3	2002	0.15	99.70
6.45-	6.54	2.54-	2.57	3	1999	0.15	99.55
6.35-	6.44	2.50-	2.53	5	1996	0.25	99.40
6.25-	6.34	2.46-	2.49	14	1991	0.70	99.15
6.15-	6.24	2.42-	2.45	11	1977	0.55	98.46
6.05-	6.14	2.38-	2.41	17	1966	0.85	97.91
5.95-	6.04	2.34-	2.37	24	1949	1.20	97.06
5.85-	5.94	2.30-	2.33	31	1925	1.54	95.87
5.75-	5.84	2.26-	2.29	45	1894	2.24	94.32
5.65-	5.74	2.22-	2.25	65	1849	3.24	92.08
5.55-	5.64	2.19-	2.21	60	1784	2.99	88.84
5.45-	5.54	2.15-	2.18	71	1724	3.54	85.86
5.35-	5.44	2.11-	2.14	101	1653	5.03	82.32
5.25-	5.34	2.07-	2.10	160	1552	7.97	77.29
5.15-	5.24	2.03-	2.06	157	1392	7.82	69.32
5.05-	5.14	1.99-	2.02	141	1235	7.02	61.50
4.95-	5.04	1.95-	1.98	132	1094	6.57	54.48
4.85-	4.94	1.91-	1.94	164	962	8.17	47.91
4.75-	4.84	1.87-	1.90	137	798	6.82	39.74
4.65-	4.74	1.83-	1.86	136	661	6.77	32.92
4.55-	4.64	1.79-	1.82	103	525	5.13	26.15
4.45-	4.54	1.75-	1.78	85	422	4.23	21.02
4.35-	4.44	1.71-	1.74	71	337	3.54	16.78
4.25-	4.34	1.67-	1.70	85	266	4.23	13.25
4.15-	4.24	1.63-	1.66	60	181	2.99	9.01
4.05-	4.14	1.59-	1.62	44	121	2.19	6.03
3.95-	4.04	1.56-	1.58	27	77	1.34	3.83
3.85-	3.94	1.52-	1.55	27	50	1.34	2.49
3.75-	3.84	1.48-	1.51	14	23	0.70	1.15
3.65-	3.74	1.44-	1.47	3	9	0.15	0.45
3.55-	3.64	1.40-	1.43	2	6	0.10	0.30
3.45-	3.54	1.36-	1.39	1	4	0.05	0.20
3.35-	3.44	1.32-	1.35	2	3	0.10	0.15
3.25-	3.34	1.28-	1.31	0	1	0.00	0.05
3.15-	3.24	1.24-	1.27	0	1	0.00	0.05
3.05-	3.14	1.20-	1.23	1	1	0.05	0.05

63 Thumb Crotch Length

PERCENTILES

CENTIMETERS		INCHES
6.35	99 TH	2.50
6.15	98 TH	2.42
6.03	97 TH	2.37
5.88	95 TH	2.32
5.67	90 TH	2.23
5.54	85 TH	2.18
5.43	80 TH	2.14
5.34	75 TH	2.10
5.26	70 TH	2.07
5.19	65 TH	2.04
5.12	60 TH	2.02
5.05	55 TH	1.99
4.98	50 TH	1.96
4.91	45 TH	1.93
4.85	40 TH	1.91
4.77	35 TH	1.88
4.70	30 TH	1.85
4.61	25 TH	1.82
4.52	20 TH	1.78
4.42	15 TH	1.74
4.28	10 TH	1.69
4.10	5 TH	1.61
3.99	3 RD	1.57
3.92	2 ND	1.54
3.82	1 ST	1.50



THE SUMMARY STATISTICS

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Thumb Crotch Length: Subject sits, with his right hand and fingers extended, palm up, and with his thumb extended away from the hand. The length of the thumb crotch is measured from the skinfold at the base of the thumb to the notch between the first and second fingers. Sliding calipers are used.

CENTIMETERS		INCHES
4.99	MEAN	1.96
0.01	SE(M)	0.00
0.54	ST DEV	0.21
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.15

KURTOSIS--BETA II = 3.12

COEFFICIENT OF VARIATION = 10.87

....

SAMPLE SIZE = 2008

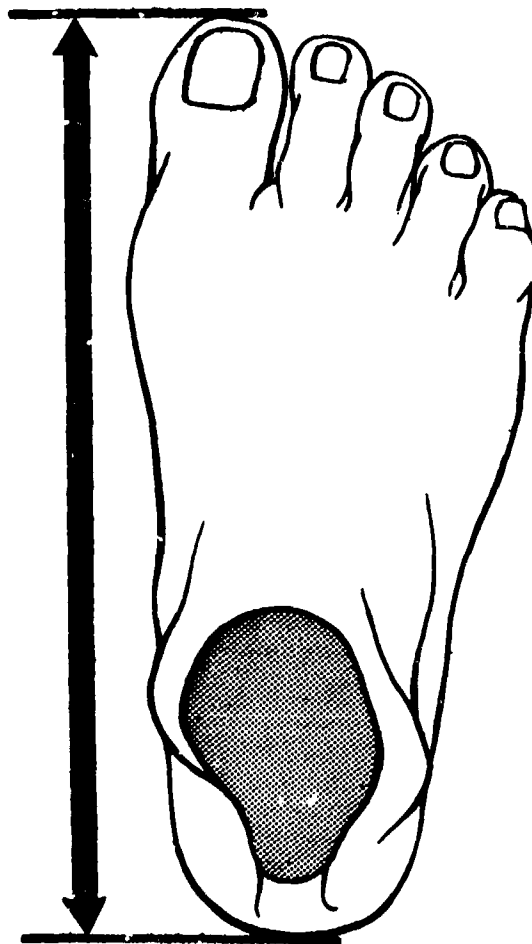
84 Foot Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
31.25-	31.44	12.30-	12.37	1	2008	0.05	100.00
31.05-	31.24	12.22-	12.29	0	2007	0.00	99.95
30.85-	31.04	12.15-	12.21	2	2007	0.10	99.95
30.65-	30.84	12.07-	12.14	1	2005	0.05	99.85
30.45-	30.64	11.99-	12.06	4	2004	0.20	99.80
30.25-	30.44	11.91-	11.98	5	2000	0.25	99.60
30.05-	30.24	11.83-	11.90	5	1995	0.25	99.35
29.85-	30.04	11.75-	11.82	5	1990	0.25	99.10
29.65-	29.84	11.67-	11.74	11	1985	0.55	98.85
29.45-	29.64	11.59-	11.66	12	1974	0.60	98.31
29.25-	29.44	11.52-	11.58	12	1962	0.60	97.71
29.05-	29.24	11.44-	11.51	25	1950	1.25	97.11
28.85-	29.04	11.36-	11.43	28	1925	1.39	95.87
28.65-	28.84	11.28-	11.35	33	1897	1.64	94.47
28.45-	28.64	11.20-	11.27	35	1864	1.74	92.83
28.25-	28.44	11.12-	11.19	46	1829	2.29	91.09
28.05-	28.24	11.04-	11.11	53	1783	2.64	88.79
27.85-	28.04	10.96-	11.03	89	1730	4.43	86.16
27.65-	27.84	10.89-	10.95	94	1641	4.68	81.72
27.45-	27.64	10.81-	10.88	88	1547	4.38	77.04
27.25-	27.44	10.73-	10.80	110	1459	5.48	72.66
27.05-	27.24	10.65-	10.72	118	1349	5.88	67.18
26.85-	27.04	10.57-	10.64	103	1231	5.13	61.30
26.65-	26.84	10.49-	10.56	137	1128	6.82	56.18
26.45-	26.64	10.41-	10.48	113	991	5.63	49.35
26.25-	26.44	10.33-	10.40	143	878	7.12	43.73
26.05-	26.24	10.26-	10.32	128	735	6.37	36.60
25.85-	26.04	10.18-	10.25	84	607	4.18	30.23
25.65-	25.84	10.10-	10.17	99	523	4.93	26.05
25.45-	25.64	10.02-	10.09	79	424	3.93	21.12
25.25-	25.44	9.94-	10.01	92	345	4.58	17.18
25.05-	25.24	9.86-	9.93	77	253	3.83	12.60
24.85-	25.04	9.78-	9.85	31	176	1.54	8.76
24.65-	24.84	9.70-	9.77	41	145	2.04	7.22
24.45-	24.64	9.63-	9.69	30	104	1.49	5.18
24.25-	24.44	9.55-	9.62	27	74	1.34	3.69
24.05-	24.24	9.47-	9.54	20	47	1.00	2.34
23.85-	24.04	9.39-	9.46	8	27	0.40	1.34
23.65-	23.84	9.31-	9.38	7	19	0.35	0.95
23.45-	23.64	9.23-	9.30	2	12	0.10	0.60
23.25-	23.44	9.15-	9.22	5	10	0.25	0.50
23.05-	23.24	9.07-	9.14	2	5	0.10	0.25
22.85-	23.04	9.00-	9.06	1	3	0.05	0.15
22.65-	22.84	8.92-	8.99	1	2	0.05	0.10
22.45-	22.64	8.84-	8.91	1	1	0.05	0.05

64 Foot Length

PERCENTILES

CENTIMETERS		INCHES
29.98	99 TH	11.80
29.53	98 TH	11.62
29.25	97 TH	11.52
28.90	95 TH	11.38
28.37	90 TH	11.17
28.03	85 TH	11.04
27.77	80 TH	10.93
27.54	75 TH	10.84
27.35	70 TH	10.77
27.17	65 TH	10.70
27.00	60 TH	10.63
26.83	55 TH	10.56
26.67	50 TH	10.50
26.51	45 TH	10.44
26.35	40 TH	10.37
26.18	35 TH	10.31
26.01	30 TH	10.24
25.82	25 TH	10.17
25.61	20 TH	10.08
25.37	15 TH	9.99
25.07	10 TH	9.87
24.64	5 TH	9.70
24.37	3 RD	9.59
24.17	2 ND	9.52
23.88	1 ST	9.40



THE SUMMARY STATISTICS

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CENTIMETERS		INCHES
26.70	MEAN	10.51
0.03	SE(M)	0.01
1.29	ST DEV	0.51
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.18

KURTOSIS--BETA II = 3.11

COEFFICIENT OF VARIATION = 4.84

....

SAMPLE SIZE = 2008

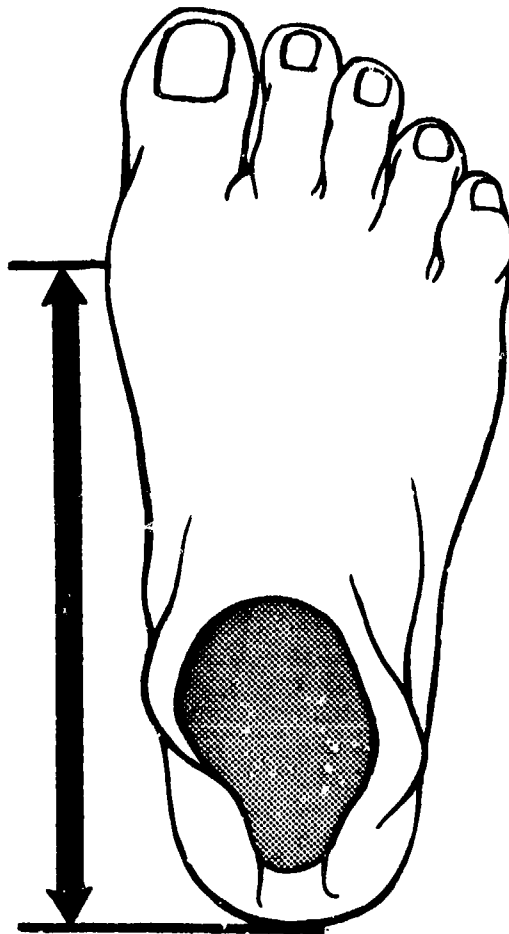
Foot Length: Subject stands erect, with his right foot in a foot measuring box, and with his weight evenly distributed on both feet. The maximum length of the right foot is measured from the back of the heel to the tip of the longest toe. A foot measuring box is used.

65 Instep Length

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
23.15-	23.34	9.11-	9.18	2	2008	0.10	100.00
22.95-	23.14	9.04-	9.10	0	2006	0.00	99.90
22.75-	22.94	8.96-	9.03	3	2006	0.15	99.90
22.55-	22.74	8.88-	8.95	2	2003	0.10	99.75
22.35-	22.54	8.80-	8.87	6	2001	0.30	99.65
22.15-	22.34	8.72-	8.79	11	1995	0.55	99.35
21.95-	22.14	8.64-	8.71	9	1984	0.45	98.80
21.75-	21.94	8.56-	8.63	24	1975	1.20	98.36
21.55-	21.74	8.48-	8.55	19	1951	0.95	97.16
21.35-	21.54	8.41-	8.47	24	1932	1.20	96.22
21.15-	21.34	8.33-	8.40	44	1908	2.19	95.02
20.95-	21.14	8.25-	8.32	40	1864	1.99	92.83
20.75-	20.94	8.17-	8.24	49	1824	2.44	90.84
20.55-	20.74	8.09-	8.16	114	1775	5.68	88.40
20.35-	20.54	8.01-	8.08	101	1661	5.03	82.72
20.15-	20.34	7.93-	8.00	182	1560	9.06	77.69
19.95-	20.14	7.85-	7.92	90	1378	4.48	68.63
19.75-	19.94	7.78-	7.84	142	1288	7.07	64.14
19.55-	19.74	7.70-	7.77	172	1146	8.57	57.07
19.35-	19.54	7.62-	7.69	116	974	5.78	48.51
19.15-	19.34	7.54-	7.61	203	858	10.11	42.73
18.95-	19.14	7.46-	7.53	111	655	5.53	32.62
18.75-	18.94	7.38-	7.45	103	544	5.13	27.09
18.55-	18.74	7.30-	7.37	131	441	6.52	21.96
18.35-	18.54	7.22-	7.29	46	310	2.29	15.44
18.15-	18.34	7.15-	7.21	107	264	5.33	13.15
17.95-	18.14	7.07-	7.14	41	157	2.04	7.82
17.75-	17.94	6.99-	7.06	38	116	1.89	5.78
17.55-	17.74	6.91-	6.98	28	78	1.39	3.88
17.35-	17.54	6.83-	6.90	10	50	0.50	2.49
17.15-	17.34	6.75-	6.82	18	40	0.90	1.99
16.95-	17.14	6.67-	6.74	9	22	0.45	1.10
16.75-	16.94	6.59-	6.66	5	13	0.25	0.65
16.55-	16.74	6.52-	6.58	5	8	0.25	0.40
16.35-	16.54	6.44-	6.51	1	3	0.05	0.15
16.15-	16.34	6.36-	6.43	0	2	0.00	0.10
15.95-	16.14	6.28-	6.35	1	2	0.05	0.10
15.75-	15.94	6.20-	6.27	0	1	0.00	0.05
15.55-	15.74	6.12-	6.19	1	1	0.05	0.05

PERCENTILES

CENTIMETERS		INCHES	
22.25	99 TH	8.76	
21.88	98 TH	8.61	
21.65	97 TH	8.52	
21.36	95 TH	8.41	
20.94	90 TH	8.24	
20.66	85 TH	8.14	
20.45	80 TH	8.05	
20.28	75 TH	7.98	
20.12	70 TH	7.92	
19.97	65 TH	7.86	
19.84	60 TH	7.81	
19.71	55 TH	7.76	
19.58	50 TH	7.71	
19.45	45 TH	7.66	
19.32	40 TH	7.61	
19.18	35 TH	7.55	
19.04	30 TH	7.50	
18.88	25 TH	7.43	
18.71	20 TH	7.37	
18.50	15 TH	7.28	
18.24	10 TH	7.18	
17.85	5 TH	7.03	
17.59	3 RD	6.93	
17.40	2 ND	6.85	
17.10	1 ST	6.73	



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES	
19.58	MEAN	7.71	
0.02	SE(M)	0.01	
1.06	ST DEV	0.42	
0.02	SE(SD)	0.01	

....

SYMMETRY--BETA I = 0.07

KURTOSIS--BETA II = 3.21

COEFFICIENT OF VARIATION = 5.41

....

SAMPLE SIZE = 2008

Instep Length: Subject stands erect, with his right foot in a foot measuring box, and with his weight evenly distributed on both feet. The length of the instep of the right foot is measured from the back of the heel to the center of the inner ball of the foot (first metatarsal-phalangeal joint). A foot measuring box is used.

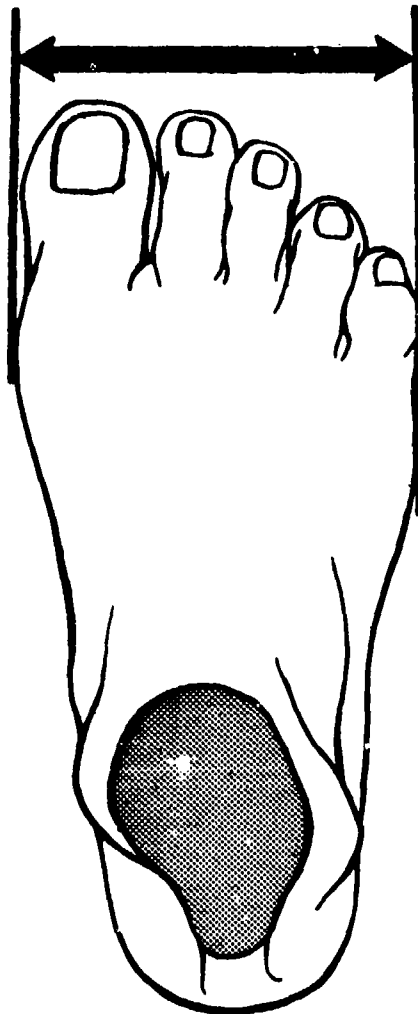
68 Ball of Foot Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
11.75-	11.84	4.63-	4.66	1	2008	0.05	100.00
11.65-	11.74	4.59-	4.62	1	2007	0.05	99.95
11.55-	11.64	4.55-	4.58	0	2006	0.00	99.90
11.45-	11.54	4.51-	4.54	3	2006	0.15	99.90
11.35-	11.44	4.47-	4.50	4	2003	0.20	99.75
11.25-	11.34	4.43-	4.46	7	1999	0.35	99.55
11.15-	11.24	4.39-	4.42	3	1992	0.15	99.20
11.05-	11.14	4.35-	4.38	8	1989	0.40	99.05
10.95-	11.04	4.31-	4.34	10	1981	0.50	98.66
10.85-	10.94	4.27-	4.30	12	1971	0.60	98.16
10.75-	10.84	4.23-	4.26	23	1959	1.15	97.56
10.65-	10.74	4.19-	4.22	31	1936	1.54	96.41
10.55-	10.64	4.15-	4.18	42	1905	2.09	94.87
10.45-	10.54	4.11-	4.14	45	1863	2.24	92.78
10.35-	10.44	4.07-	4.10	88	1818	4.38	90.54
10.25-	10.34	4.04-	4.06	113	1730	5.63	86.16
10.15-	10.24	4.00-	4.03	115	1617	5.73	80.53
10.05-	10.14	3.96-	3.99	112	1502	5.58	74.80
9.95-	10.04	3.92-	3.95	132	1390	6.57	69.22
9.85-	9.94	3.88-	3.91	142	1258	7.07	62.65
9.75-	9.84	3.84-	3.87	155	1116	7.72	55.58
9.65-	9.74	3.80-	3.83	181	961	9.01	47.86
9.55-	9.64	3.76-	3.79	133	780	6.62	38.84
9.45-	9.54	3.72-	3.75	137	647	6.82	32.22
9.35-	9.44	3.68-	3.71	130	510	6.47	25.40
9.25-	9.34	3.64-	3.67	110	380	5.48	18.92
9.15-	9.24	3.60-	3.63	76	270	3.78	13.45
9.05-	9.14	3.56-	3.59	50	194	2.49	9.66
8.95-	9.04	3.52-	3.55	46	144	2.29	7.17
8.85-	8.94	3.48-	3.51	43	98	2.14	4.88
8.75-	8.84	3.45-	3.47	9	55	0.45	2.74
8.65-	8.74	3.41-	3.44	22	46	1.10	2.29
8.55-	8.64	3.37-	3.40	7	24	0.35	1.20
8.45-	8.54	3.33-	3.36	7	17	0.35	0.85
8.35-	8.44	3.29-	3.32	6	10	0.30	0.50
8.25-	8.34	3.25-	3.28	3	4	0.15	0.20
8.15-	8.24	3.21-	3.24	1	1	0.05	0.05

66 Ball of Foot Breadth

PERCENTILES

CENTIMETERS		INCHES
11.12	99 TH	4.38
10.93	98 TH	4.30
10.82	97 TH	4.26
10.67	95 TH	4.20
10.46	90 TH	4.12
10.32	85 TH	4.06
10.22	80 TH	4.02
10.13	75 TH	3.99
10.05	70 TH	3.96
9.98	65 TH	3.93
9.92	60 TH	3.90
9.85	55 TH	3.88
9.79	50 TH	3.85
9.73	45 TH	3.83
9.66	40 TH	3.80
9.60	35 TH	3.78
9.53	30 TH	3.75
9.45	25 TH	3.72
9.37	20 TH	3.69
9.27	15 TH	3.65
9.15	10 TH	3.60
8.96	5 TH	3.53
8.83	3 RD	3.48
8.74	2 ND	3.44
8.60	1 ST	3.38



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
9.80	MEAN	3.86
0.01	SE(M)	0.00
0.52	ST DEV	0.21
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.16

KURTOSIS--BETA II = 3.27

COEFFICIENT OF VARIATION = 5.32

....

SAMPLE SIZE = 2008

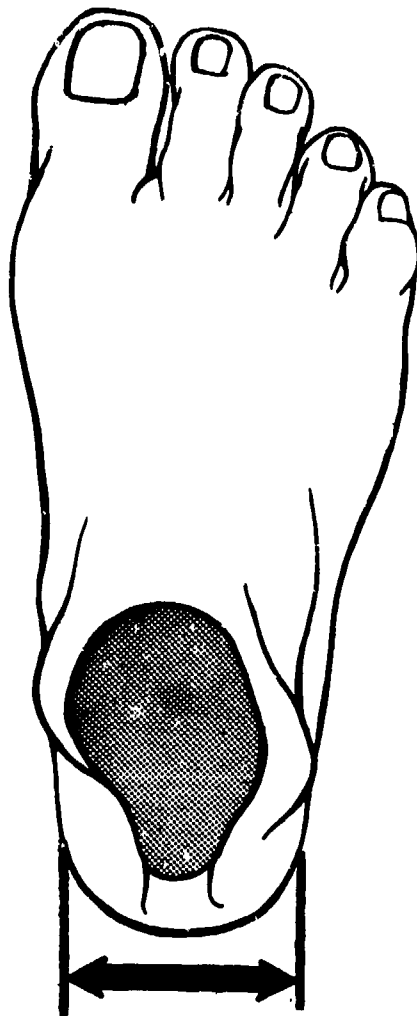
Ball Of Foot Breadth: Subject stands erect, with his right foot in a foot measuring box, and with his weight evenly distributed on both feet. The breadth of the right foot is measured between the inner and outer balls of the foot (first and fifth metatarsal-phalangeal joints). A foot measuring box is used.

67 Heel Breadth

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
8.55-	8.64	3.37-	3.40	1	2008	0.05	100.00
8.45-	8.54	3.33-	3.36	1	2007	0.05	99.95
8.35-	8.44	3.29-	3.32	2	2006	0.10	99.90
8.25-	8.34	3.25-	3.28	4	2004	0.20	99.80
8.15-	8.24	3.21-	3.24	4	2000	0.20	99.60
8.05-	8.14	3.17-	3.20	6	1996	0.30	99.40
7.95-	8.04	3.13-	3.16	6	1990	0.30	99.10
7.85-	7.94	3.09-	3.12	13	1984	0.65	98.80
7.75-	7.84	3.05-	3.08	13	1971	0.65	98.16
7.65-	7.74	3.01-	3.04	24	1958	1.20	97.51
7.55-	7.64	2.97-	3.00	46	1934	2.29	96.31
7.45-	7.54	2.93-	2.96	38	1888	1.89	94.02
7.35-	7.44	2.89-	2.92	56	1850	2.79	92.13
7.25-	7.34	2.85-	2.88	93	1794	4.63	89.34
7.15-	7.24	2.82-	2.84	121	1701	6.03	84.71
7.05-	7.14	2.78-	2.81	155	1580	7.72	78.69
6.95-	7.04	2.74-	2.77	139	1425	6.92	70.97
6.85-	6.94	2.70-	2.73	181	1286	9.01	64.04
6.75-	6.84	2.66-	2.69	185	1105	9.21	55.03
6.65-	6.74	2.62-	2.65	206	920	10.26	45.82
6.55-	6.64	2.58-	2.61	173	714	8.62	35.56
6.45-	6.54	2.54-	2.57	133	541	6.62	26.94
6.35-	6.44	2.50-	2.53	126	408	6.27	20.32
6.25-	6.34	2.46-	2.49	114	282	5.68	14.04
6.15-	6.24	2.42-	2.45	78	168	3.88	8.37
6.05-	6.14	2.38-	2.41	43	90	2.14	4.48
5.95-	6.04	2.34-	2.37	16	47	0.80	2.34
5.85-	5.94	2.30-	2.33	18	31	0.90	1.54
5.75-	5.84	2.26-	2.29	7	13	0.35	0.65
5.65-	5.74	2.22-	2.25	5	6	0.25	0.30
5.55-	5.64	2.19-	2.21	0	1	0.00	0.05
5.45-	5.54	2.15-	2.18	0	1	0.00	0.05
5.35-	5.44	2.11-	2.14	0	1	0.00	0.05
5.25-	5.34	2.07-	2.10	0	1	0.00	0.05
5.15-	5.24	2.03-	2.06	1	1	0.05	0.05

PERCENTILES

CENTIMETERS		INCHES
8.01	99 TH	3.15
7.83	98 TH	3.08
7.72	97 TH	3.04
7.58	95 TH	2.99
7.39	90 TH	2.91
7.26	85 TH	2.86
7.17	80 TH	2.82
7.09	75 TH	2.79
7.02	70 TH	2.77
6.96	65 TH	2.74
6.90	60 TH	2.72
6.85	55 TH	2.70
6.80	50 TH	2.68
6.74	45 TH	2.66
6.69	40 TH	2.63
6.64	35 TH	2.61
6.58	30 TH	2.59
6.52	25 TH	2.57
6.46	20 TH	2.54
6.38	15 TH	2.51
6.29	10 TH	2.48
6.15	5 TH	2.42
6.06	3 RD	2.39
6.00	2 ND	2.36
5.90	1 ST	2.32



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
6.82	MEAN	2.69
0.01	SE(M)	0.00
0.44	ST DEV	0.17
0.01	SE(SD)	0.00

....

SYMMETRY--BETA I = 0.38

KURTOSIS--BETA II = 3.45

COEFFICIENT OF VARIATION = 6.42

....

SAMPLE SIZE = 2008

Heel Breadth: Subject stands erect, with his feet slightly apart, and with his weight evenly distributed on both feet. The breadth of the right heel is measured below and behind the projections of the ankles bones (malleoli). Sliding calipers are used.

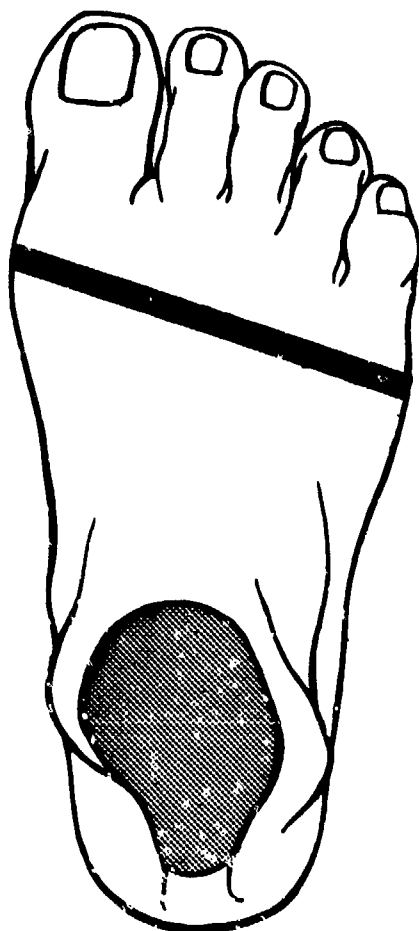
68 Ball of Foot Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
29.25-	29.44	11.52-	11.58	2	2008	0.10	100.00
29.05-	29.24	11.44-	11.51	1	2006	0.05	99.90
28.85-	29.04	11.36-	11.43	7	2005	0.35	99.85
28.65-	28.84	11.28-	11.35	5	1998	0.25	99.50
28.45-	28.64	11.20-	11.27	1	1993	0.05	99.25
28.25-	28.44	11.12-	11.19	9	1992	0.45	99.20
28.05-	28.24	11.04-	11.11	7	1983	0.35	98.75
27.85-	28.04	10.96-	11.03	5	1976	0.25	98.41
27.65-	27.84	10.89-	10.95	17	1971	0.85	98.16
27.45-	27.64	10.81-	10.88	28	1954	1.39	97.31
27.25-	27.44	10.73-	10.80	26	1926	1.29	95.92
27.05-	27.24	10.65-	10.72	35	1900	1.74	94.62
26.85-	27.04	10.57-	10.64	32	1865	1.59	92.88
26.65-	26.84	10.49-	10.56	49	1833	2.44	91.28
26.45-	26.64	10.41-	10.48	66	1784	3.29	88.84
26.25-	26.44	10.33-	10.40	83	1718	4.13	85.56
26.05-	26.24	10.26-	10.32	99	1635	4.93	81.42
25.85-	26.04	10.18-	10.25	108	1536	5.38	76.49
25.65-	25.84	10.10-	10.17	122	1428	6.08	71.12
25.45-	25.64	10.02-	10.09	104	1306	5.18	65.04
25.25-	25.44	9.94-	10.01	130	1202	6.47	59.86
25.05-	25.24	9.86-	9.93	105	1072	5.23	53.39
24.85-	25.04	9.78-	9.85	112	967	5.58	48.16
24.65-	24.84	9.70-	9.77	123	855	6.13	42.58
24.45-	24.64	9.63-	9.69	110	732	5.48	36.45
24.25-	24.44	9.55-	9.62	109	622	5.43	30.98
24.05-	24.24	9.47-	9.54	121	513	6.03	25.55
23.85-	24.04	9.39-	9.46	82	392	4.08	19.52
23.65-	23.84	9.31-	9.38	55	310	2.74	15.44
23.45-	23.64	9.23-	9.30	53	255	2.64	12.70
23.25-	23.44	9.15-	9.22	45	202	2.24	10.06
23.05-	23.24	9.07-	9.14	41	157	2.04	7.82
22.85-	23.04	9.00-	9.06	36	116	1.79	5.78
22.65-	22.84	8.92-	8.99	19	80	0.95	3.98
22.45-	22.64	8.84-	8.91	21	61	1.05	3.04
22.25-	22.44	8.76-	8.83	16	40	0.80	1.99
22.05-	22.24	8.68-	8.75	13	24	0.65	1.20
21.85-	22.04	8.60-	8.67	3	11	0.15	0.55
21.65-	21.84	8.52-	8.59	2	8	0.10	0.40
21.45-	21.64	8.45-	8.51	3	6	0.15	0.30
21.25-	21.44	8.37-	8.44	0	3	0.00	0.15
21.05-	21.24	8.29-	8.36	1	3	0.05	0.15
20.85-	21.04	8.21-	8.28	1	2	0.05	0.10
20.65-	20.84	8.13-	8.20	0	1	0.00	0.05
20.45-	20.64	8.05-	8.12	1	1	0.05	0.05

68 Ball of Foot Circumference

PERCENTILES

CENTIMETERS		INCHES
28.33	99 TH	11.15
27.87	98 TH	10.97
27.60	97 TH	10.87
27.26	95 TH	10.73
26.76	90 TH	10.54
26.44	85 TH	10.41
26.19	80 TH	10.31
25.98	75 TH	10.23
25.79	70 TH	10.15
25.62	65 TH	10.09
25.45	60 TH	10.02
25.29	55 TH	9.96
25.13	50 TH	9.89
24.96	45 TH	9.83
24.80	40 TH	9.76
24.63	35 TH	9.70
24.44	30 TH	9.62
24.24	25 TH	9.55
24.02	20 TH	9.46
23.76	15 TH	9.36
23.44	10 TH	9.23
22.96	5 TH	9.04
22.67	3 RD	8.93
22.47	2 ND	8.85
22.17	1 ST	8.73



THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
25.12	MEAN	9.89
0.03	SE(M)	0.01
1.31	ST DEV	0.51
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.07
KURTOSIS--BETA II = 3.08
COEFFICIENT OF VARIATION = 5.20

....

SAMPLE SIZE = 2008

Ball Of Foot Circumference: Subject stands erect, with his feet slightly apart and with his weight evenly distributed on both feet. The circumference of the right foot is measured. A steel tape is used, with the tape passing over the inner and outer balls of the foot (first and fifth metatarsal-phalangeal joints).

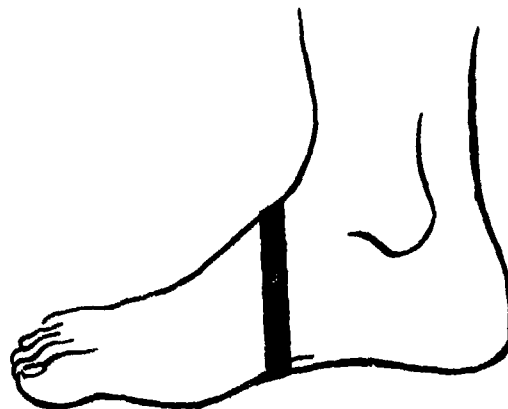
00 Instep Circumference

--INTERVALS--				--FREQUENCIES--		
CENTIMETERS		INCHES	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FW
30.95-	31.14	12.19- 12.25	1	2008	0.05	100.00
30.75-	30.94	12.11- 12.18	0	2007	0.00	99.95
30.55-	30.74	12.03- 12.10	1	2007	0.05	99.95
30.35-	30.54	11.95- 12.02	2	2006	0.10	99.90
30.15-	30.34	11.87- 11.94	3	2004	0.15	99.80
29.95-	30.14	11.79- 11.86	3	2001	0.15	99.65
29.75-	29.94	11.71- 11.78	6	1998	0.30	99.50
29.55-	29.74	11.63- 11.70	6	1992	0.30	99.20
29.35-	29.54	11.56- 11.62	10	1986	0.50	98.90
29.15-	29.34	11.48- 11.55	22	1976	1.10	98.41
28.95-	29.14	11.40- 11.47	21	1954	1.05	97.31
28.75-	28.94	11.32- 11.39	27	1933	1.34	96.26
28.55-	28.74	11.24- 11.31	35	1906	1.74	94.92
28.35-	28.54	11.16- 11.23	40	1871	1.99	93.18
28.15-	28.34	11.08- 11.15	46	1831	2.29	91.19
27.95-	28.14	11.00- 11.07	48	1785	2.39	88.89
27.75-	27.94	10.93- 10.99	61	1737	3.04	86.50
27.55-	27.74	10.85- 10.92	63	1676	3.14	83.47
27.35-	27.54	10.77- 10.84	84	1613	4.18	80.33
27.15-	27.34	10.69- 10.76	112	1529	5.58	76.15
26.95-	27.14	10.61- 10.68	87	1417	4.33	70.57
26.75-	26.94	10.53- 10.60	97	1330	4.83	66.24
26.55-	26.74	10.45- 10.52	98	1233	4.88	61.40
26.35-	26.54	10.37- 10.44	106	1135	5.28	56.52
26.15-	26.34	10.30- 10.36	102	1029	5.08	51.25
25.95-	26.14	10.22- 10.29	129	927	6.42	46.17
25.75-	25.94	10.14- 10.21	95	798	4.73	39.74
25.55-	25.74	10.06- 10.13	98	703	4.88	35.01
25.35-	25.54	9.98- 10.05	100	605	4.98	30.13
25.15-	25.34	9.90- 9.97	100	505	4.98	25.15
24.95-	25.14	9.82- 9.89	78	405	3.88	20.17
24.75-	24.94	9.74- 9.81	58	327	2.89	16.28
24.55-	24.74	9.67- 9.73	52	269	2.59	13.40
24.35-	24.54	9.59- 9.66	47	217	2.34	10.81
24.15-	24.34	9.51- 9.58	45	170	2.24	8.47
23.95-	24.14	9.43- 9.50	41	125	2.04	6.23
23.75-	23.94	9.35- 9.42	19	84	0.95	4.18
23.55-	23.74	9.27- 9.34	21	65	1.05	3.24
23.35-	23.54	9.19- 9.26	12	44	0.60	2.19
23.15-	23.34	9.11- 9.18	7	32	0.35	1.59
22.95-	23.14	9.04- 9.10	4	25	0.20	1.25
22.75-	22.94	8.96- 9.03	6	21	0.30	1.05
22.55-	22.74	8.88- 8.95	6	15	0.30	0.75
22.35-	22.54	8.80- 8.87	4	9	0.20	0.45
22.15-	22.34	8.72- 8.79	1	5	0.05	0.25
21.95-	22.14	8.64- 8.71	0	4	0.00	0.20
21.75-	21.94	8.56- 8.63	1	4	0.05	0.20
21.55-	21.74	8.48- 8.55	1	3	0.05	0.15
21.35-	21.54	8.41- 8.47	0	2	0.00	0.10
21.15-	21.34	8.33- 8.40	2	2	0.10	0.20

69 Instep Circumference

PERCENTILES

CENTIMETERS		INCHES
29.60	99 TH	11.65
29.30	98 TH	11.54
29.08	97 TH	11.45
28.77	95 TH	11.32
28.24	90 TH	11.12
27.87	85 TH	10.97
27.57	80 TH	10.85
27.31	75 TH	10.75
27.08	70 TH	10.66
26.87	65 TH	10.58
26.68	60 TH	10.50
26.49	55 TH	10.43
26.30	50 TH	10.36
26.12	45 TH	10.28
25.94	40 TH	10.21
25.76	35 TH	10.14
25.56	30 TH	10.06
25.36	25 TH	9.98
25.13	20 TH	9.89
24.87	15 TH	9.79
24.53	10 TH	9.66
24.03	5 TH	9.46
23.68	3 RD	9.32
23.42	2 ND	9.22
22.97	1 ST	9.04



Instep Circumference: Subject stands erect, with his feet slightly apart, and with his weight evenly distributed on both feet. The vertical circumference of the instep of the right foot is measured. A steel tape is used, with the tape passing under the foot and over the junction of the leg and foot.

THE SUMMARY STATISTICS

....

CENTIMETERS		INCHES
26.33	MEAN	10.37
0.03	SE(M)	0.01
1.44	ST DEV	0.57
0.02	SE(SD)	0.01

....

SYMMETRY--BETA I = 0.02
KURTOSIS--BETA II = 2.93
COEFFICIENT OF VARIATION = 5.47

....

SAMPLE SIZE = 2008

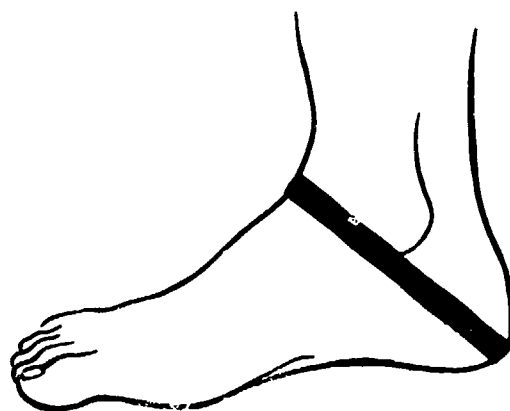
70 Heel-Ankle Circumference

--INTERVALS--				--FREQUENCIES--			
CENTIMETERS		INCHES		ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
39.85-	40.14	15.69-	15.80	2	2007	0.10	100.00
39.55-	39.84	15.57-	15.68	1	2005	0.05	99.90
39.25-	39.54	15.45-	15.56	0	2004	0.00	99.85
38.95-	39.24	15.33-	15.44	1	2004	0.05	99.85
38.65-	38.94	15.22-	15.32	5	2005	0.25	99.80
38.35-	38.64	15.10-	15.21	5	1998	0.25	99.55
38.05-	38.34	14.98-	15.09	7	1993	0.35	99.30
37.75-	38.04	14.86-	14.97	12	1986	0.60	98.95
37.45-	37.74	14.74-	14.85	14	1974	0.70	98.36
37.15-	37.44	14.63-	14.73	30	1960	1.49	97.66
36.85-	37.14	14.51-	14.62	28	1930	1.40	96.16
36.55-	36.84	14.39-	14.50	38	1902	1.89	94.77
36.25-	36.54	14.27-	14.38	51	1864	2.54	92.87
35.95-	36.24	14.15-	14.26	75	1813	3.74	90.33
35.65-	35.94	14.04-	14.14	72	1738	3.59	86.60
35.35-	35.64	13.92-	14.03	95	1666	4.73	83.01
35.05-	35.34	13.80-	13.91	125	1571	6.23	78.28
34.75-	35.04	13.68-	13.79	102	1446	5.08	72.05
34.45-	34.74	13.56-	13.67	143	1344	7.13	66.97
34.15-	34.44	13.45-	13.55	166	1201	8.27	59.84
33.85-	34.14	13.33-	13.44	151	1035	7.52	51.57
33.55-	33.84	13.21-	13.32	136	884	6.78	44.05
33.25-	33.54	13.09-	13.20	130	748	6.48	37.27
32.95-	33.24	12.97-	13.08	135	618	6.73	30.79
32.65-	32.94	12.85-	12.96	114	483	5.68	24.07
32.35-	32.64	12.74-	12.84	110	369	5.48	18.39
32.05-	32.34	12.62-	12.73	68	259	3.39	12.90
31.75-	32.04	12.50-	12.61	67	191	3.34	9.52
31.45-	31.74	12.38-	12.49	39	124	1.94	6.18
31.15-	31.44	12.26-	12.37	35	85	1.74	4.24
30.85-	31.14	12.15-	12.25	21	50	1.05	2.49
30.55-	30.84	12.03-	12.14	12	29	0.60	1.44
30.25-	30.54	11.91-	12.02	7	17	0.35	0.85
29.95-	30.24	11.79-	11.90	9	10	0.45	0.50
29.65-	29.94	11.67-	11.78	0	1	0.00	0.05
29.35-	29.64	11.56-	11.66	0	1	0.00	0.05
29.05-	29.34	11.44-	11.55	0	1	0.00	0.05
28.75-	29.04	11.32-	11.43	1	1	0.05	0.05

70 Heel-Ankle Circumference

PERCENTILES

CENTIMETERS		INCHES
38.09	99 TH	15.00
37.61	98 TH	14.81
37.30	97 TH	14.69
36.88	95 TH	14.52
36.24	90 TH	14.27
35.81	85 TH	14.10
35.47	80 TH	13.97
35.18	75 TH	13.85
34.93	70 TH	13.75
34.70	65 TH	13.66
34.48	60 TH	13.57
34.27	55 TH	13.49
34.06	50 TH	13.41
33.86	45 TH	13.33
33.66	40 TH	13.25
33.45	35 TH	13.17
33.23	30 TH	13.08
33.00	25 TH	12.99
32.74	20 TH	12.89
32.45	15 TH	12.78
32.09	10 TH	12.64
31.57	5 TH	12.43
31.24	3 RD	12.30
31.00	2 ND	12.21
30.63	1 ST	12.06



Heel-Ankle Circumference: Subject stands erect, with his feet slightly apart, and with his weight evenly distributed on both feet. The diagonal circumference of the right ankle is measured. A steel tape is used, with the tape passing under the tip of the heel and over the junction of the leg and the foot.

THE SUMMARY STATISTICS

....

34.13	MEAN	13.44
0.04	SE(M)	0.01
1.61	ST DEV	0.63
0.03	SE(SD)	0.01

....

SYMMETRY--BETA I	=	0.22
KURTOSIS--BETA II	=	3.02
COEFFICIENT OF VARIATION	=	4.71

....

SAMPLE SIZE = 2007

7. SUMMARY TABLES OF ANTHROPOMETRIC DATA

The detailed data for the seventy body measurements taken on the total Marine Corps series are presented in the previous section. However, to facilitate ready reference to values for groups of similar or related body measurements, the anthropometric data are summarized here in a series of four tables. These tables show the anthropometric data for the total Marine Corps series. The data in these tables are presented as statistical values, as well as percentile values.

The order of presentation of the seventy body measurements in these tables is that indicated in the Visual Index (page 54), with the measurements grouped under the following headings: Weight, Standing Measurements, Sitting Measurements, Breadth Measurements, Circumferences, Surface Measurements, Head and Face Measurements, Hand Measurements and Foot Measurements.

In the summary tables, the data are given in both centimeters and inches. Exceptions are weight, which is given in kilograms in the metric tables and in pounds in the inch tables, and age, which is given in years.

a. Tables of Statistical Values

The first set of tables (Table 3 in centimeters and Table 4 in inches) contains the statistical values for the seventy anthropometric measurements. These are: the number of men (N), the mean, the standard error of the mean (SE(M)), the standard deviation (S.D.), the standard error of the standard deviation (SE(SD)), the coefficient of variation (V(%)), the range, and the stature ratio for each measurement.

The range is indicated by the minimum value (Min.), the maximum value (Max.), and the total range, or the difference between the minimum and maximum values. The range or spread of each body measurement (from the lowest value on the smallest man to the highest value on the largest man) has been tabulated into intervals, as indicated in the data pages, Section 6, c. (page 52).

The stature ratio is the result of dividing the mean value of each measurement by the mean value of stature. This ratio is a useful indication of proportion. The ratios shown in the tables may be converted into percentages by multiplying by 100. Thus, the stature ratio of sitting height is 0.521, indicating that mean sitting height for the total Marine Corps series is 52.1 percent of mean stature.

Table 3. STATISTICAL VALUES FOR TOTAL MARINE CORPS SERIES

No.	Measurements	Values in Centimeters							Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range Min. Max.	
1	Weight (kilograms)	2006	72.65	0.20	8.92	0.14	12.28	49.9 111.6	61.7
STANDING MEASUREMENTS									
2	Stature	2008	174.56	0.14	6.31	0.10	3.61	156.8 196.2	39.4
3	Cervicale Height	2008	149.59	0.14	6.10	0.10	4.08	131.8 169.0	37.2
4	Shoulder (Acromiale) Height	2008	143.98	0.13	5.96	0.09	4.14	125.4 163.9	38.5
5	Waist (Iliocristale) Height	2008	106.03	0.11	5.14	0.08	4.84	90.3 122.9	32.6
6	Crotch Height	2008	83.95	0.10	4.62	0.07	5.51	67.6 98.6	31.0
7	Kneecap (Patella) Height	2008	52.78	0.08	3.36	0.05	6.38	42.9 64.1	21.2
8	Calf Height	2008	36.04	0.06	2.69	0.04	7.47	28.1 44.2	16.1
9	Functional (Thumb-Tip) Reach	2008	80.33	0.11	4.79	0.08	5.97	66.5 96.4	29.9
SITTING MEASUREMENTS									
10	Vertical Reach, Sitting	2008	137.77	0.13	5.68	0.09	4.12	121.9 155.7	33.8
11	Sitting Height	2008	90.99	0.08	3.53	0.06	3.88	80.4 100.9	20.5
12	Eye Height, Sitting	2008	78.64	0.07	3.34	0.05	4.25	68.2 88.5	20.3
13	Mid-Shoulder Height, Sitting	2008	62.38	0.07	3.19	0.05	5.11	51.7 71.3	19.6
14	Shoulder-Elbow Length	2008	37.12	0.04	1.84	0.03	4.96	31.8 43.2	11.4
15	Elbow-Fingertip Length	2008	47.82	0.05	2.22	0.04	4.64	39.9 55.7	15.8
16	Knee Height, Sitting	2008	54.23	0.06	2.63	0.04	4.84	45.8 63.7	17.9
17	Popliteal Height, Sitting	2008	45.74	0.05	2.40	0.04	5.25	37.3 52.9	15.6
18	Buttock-Knee Length	2008	59.51	0.06	2.72	0.04	4.57	51.7 68.2	16.5
19	Buttock-Popliteal Length	2008	50.11	0.06	2.54	0.04	5.08	43.0 58.8	15.8
BREATH MEASUREMENTS									
20	Chest Depth	2008	23.27	0.04	1.76	0.03	7.57	18.3 30.2	11.9
21	Chest Breadth	2008	30.74	0.04	1.88	0.03	6.13	25.6 38.2	12.6
22	Hip Breadth, Standing	2008	33.19	0.04	1.75	0.03	5.26	28.3 39.8	11.5
23	Shoulder (Bideltoide) Breadth	2008	45.48	0.05	2.32	0.04	5.09	39.1 57.7	18.6
24	Forearm-Forearm Breadth	2008	45.66	0.08	3.65	0.06	7.98	36.3 65.0	28.7
25	Hip Breadth, Sitting	2008	34.16	0.04	2.02	0.03	5.90	28.8 43.1	14.3

Table 3. STATISTICAL VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Values in Centimeters							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
CIRCUMFERENCES											
26	Neck Circumference	2008	37.71	0.04	1.91	0.03	5.06	31.1	45.5	14.4	.216
27	Shoulder Circumference	2008	113.61	0.13	5.76	0.09	5.07	99.2	140.4	41.2	.651
28	Chest Circumference	2008	94.26	0.13	5.83	0.09	6.19	80.4	124.4	44.0	.540
29	Waist Circumference	2008	79.29	0.14	6.34	0.10	7.99	63.5	110.7	47.2	.454
30	Hip (Buttock) Circumference	2008	94.85	0.12	5.23	0.08	5.52	80.0	115.9	35.9	.543
31	Upper Thigh Circumference	2008	56.32	0.09	4.21	0.07	7.48	42.3	73.2	30.9	.323
32	Lower Thigh Circumference	2008	40.05	0.07	3.20	0.05	8.00	30.5	53.2	22.7	.229
33	Calf Circumference	2008	37.16	0.05	2.35	0.04	6.32	29.3	45.4	16.1	.213
34	Ankle Circumference	2008	22.66	0.03	1.34	0.02	5.93	18.5	28.0	9.5	.130
35	Vert. Trunk Circum., Standing	2008	164.90	0.17	7.41	0.12	4.49	144.0	193.7	49.7	.945
36	Scye Circumference	2008	44.67	0.07	2.94	0.05	6.58	36.3	57.0	20.7	.256
37	Biceps Circum., Relaxed	2008	29.69	0.05	2.37	0.04	7.98	22.8	39.7	16.9	.170
38	Biceps Circum., Flexed	2008	32.42	0.05	2.42	0.04	7.45	24.4	42.5	18.1	.186
39	Forearm Circum., Flexed	2008	29.41	0.04	1.89	0.03	6.41	23.1	37.0	13.9	.168
40	Wrist Circumference	2008	17.01	0.02	0.81	0.01	4.74	14.7	19.6	4.9	.097
SURFACE MEASUREMENTS											
41	Shoulder Length	2008	16.43	0.03	1.40	0.02	8.53	10.2	20.9	10.7	.094
42	Interscye Breadth	2008	38.72	0.07	3.04	0.05	7.85	29.6	52.8	23.2	.222
43	Interscye, Maximum	2008	51.81	0.08	3.40	0.05	6.56	40.0	64.9	24.9	.297
44	Waist Back Length	2008	44.67	0.08	3.49	0.06	7.81	35.4	56.2	20.8	.256
45	Sleeve Inseam Length	2008	48.31	0.06	2.51	0.04	5.20	40.5	57.5	17.0	.277
46	Sleeve Length	2008	86.27	0.08	3.76	0.06	4.36	74.4	99.0	24.6	.494

Table 3. STATISTICAL VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Values in Centimeters							Stature ratio		
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range			
								Min.		Max.	Total
HEAD AND FACE MEASUREMENTS											
47	Head Circumference	2008	56.13	0.03	1.54	0.02	2.74	51.1	61.5	10.4	.322
48	Head Length	2008	19.43	0.02	0.72	0.01	3.73	16.9	22.1	5.2	.111
49	Occiput-Nasal Root	2008	19.08	0.02	0.72	0.01	3.77	16.6	21.7	5.1	.109
50	Occiput-External Canthus	2008	17.34	0.02	0.97	0.02	5.60	14.2	20.0	5.8	.099
51	Occiput-Triglion	2008	10.45	0.03	1.21	0.02	11.56	6.7	13.7	7.0	.060
52	Occiput-Pronasale	2008	22.14	0.02	0.81	0.01	3.65	19.3	24.9	5.6	.127
53	Head Breadth	2008	15.28	0.01	0.57	0.01	3.74	13.0	17.4	4.4	.088
54	Bitragion Breadth	2008	13.46	0.01	0.55	0.01	4.09	11.3	15.4	4.1	.077
55	Head Height (Tragion-Vertex)	2008	13.38	0.02	0.68	0.01	5.10	10.9	15.5	4.6	.077
56	Face Length (Ment.-Nas.Root)	2008	12.02	0.01	0.65	0.01	5.39	9.8	14.3	4.5	.069
57	Face Breadth (Bizygomatic)	2006	13.97	0.01	0.54	0.01	3.86	12.2	15.9	3.7	.080
58	Interpupillary Breadth	2008	6.08	0.01	0.39	0.01	6.38	4.8	7.3	2.5	.035
HAND MEASUREMENTS											
59	Hand Length	2008	18.94	0.02	0.93	0.01	4.91	15.2	22.2	7.0	.108
60	Palm Length	2008	10.53	0.01	0.59	0.01	5.64	8.3	12.5	4.2	.060
61	Hand Breadth	2008	8.86	0.01	0.44	0.01	4.98	7.7	10.9	3.2	.051
62	Hand Circumference	2008	21.68	0.02	1.11	0.02	5.10	18.1	25.6	7.5	.124
63	Thumb Crotch Length	2008	4.99	0.01	0.54	0.01	10.87	3.1	6.9	3.8	.029
FOOT MEASUREMENTS											
64	Foot Length	2008	26.70	0.03	1.29	0.02	4.84	22.5	31.3	8.8	.152
65	Instep Length	2008	19.58	0.02	1.06	0.02	5.41	15.6	23.3	7.7	.112
66	Ball of Foot Breadth	2008	9.80	0.01	0.52	0.01	5.32	8.2	11.8	3.5	.056
67	Heel Breadth	2008	6.82	0.01	0.44	0.01	6.42	5.2	8.6	3.4	.039
68	Ball of Foot Circumference	2008	25.12	0.03	1.31	0.02	5.20	20.5	29.4	8.9	.144
69	Instep Circumference	2008	26.33	0.03	1.44	0.02	5.47	21.2	31.1	9.9	.151
70	Heel-Ankle Circumference	2007	34.13	0.04	1.61	0.03	4.71	28.8	40.0	11.2	.196
	Age (years)	2008	20.88	0.06	2.87	0.05	13.74	17.0	43.0	26.0	

Table 4. STATISTICAL VALUES FOR TOTAL MARINE CORPS SERIES

No.	Measurements	Values in Inches							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
1	Weight (pounds)	2006	160.16	0.44	19.67	0.31	12.28	110.0	246.0	136.0	
STANDING MEASUREMENTS											
2	Stature	2008	68.72	0.06	2.48	0.04	3.61	61.7	77.2	15.5	1.000
3	Cervicale Height	2008	58.89	0.05	2.40	0.04	4.08	51.9	66.5	14.6	.857
4	Shoulder (Acromiale) Height	2008	56.69	0.05	2.35	0.04	4.14	49.4	64.5	15.1	.825
5	Waist (Iliocristale) Height	2008	41.74	0.05	2.02	0.03	4.84	35.6	48.4	12.8	.607
6	Crotch Height	2008	33.05	0.04	1.82	0.03	5.51	26.6	38.8	12.2	.481
7	Kneecap (Patella) Height	2008	20.78	0.03	1.32	0.02	6.38	16.9	25.2	8.3	.302
8	Calf Height	2008	14.19	0.02	1.06	0.02	7.47	11.1	17.4	6.3	.206
9	Functional (Thumb-Tip) Reach	2008	31.63	0.04	1.89	0.03	5.97	26.2	38.0	11.8	.460
SITTING MEASUREMENTS											
10	Vertical Reach, Sitting	2008	54.24	0.05	2.24	0.04	4.12	48.0	61.3	13.3	.789
11	Sitting Height	2008	35.82	0.03	1.39	0.02	3.88	31.7	39.7	8.0	.521
12	Eye Height, Sitting	2008	30.96	0.03	1.31	0.02	4.25	26.8	34.8	8.0	.451
13	Mid-Shoulder Height, Sitting	2008	24.56	0.03	1.25	0.02	5.11	20.4	28.1	7.7	.357
14	Shoulder-Elbow Length	2008	14.61	0.02	0.73	0.01	4.96	12.5	17.0	4.5	.213
15	Elbow-Fingertip Length	2008	18.83	0.02	0.87	0.01	4.64	15.7	21.9	6.2	.274
16	Knee Height, Sitting	2008	21.35	0.02	1.03	0.02	4.84	18.0	25.1	7.1	.311
17	Popliteal Height, Sitting	2008	18.01	0.02	0.95	0.01	5.25	14.7	20.8	6.1	.262
18	Buttock-Knee Length	2008	23.43	0.02	1.07	0.02	4.57	20.4	26.8	6.4	.341
19	Buttock-Popliteal Length	2008	19.73	0.02	1.00	0.02	5.08	16.9	23.1	6.2	.287
BREATH MEASUREMENTS											
20	Chest Depth	2008	9.16	0.02	0.69	0.01	7.57	7.2	11.9	4.7	.133
21	Chest Breadth	2008	12.10	0.02	0.74	0.01	6.13	10.1	15.0	4.9	.176
22	Hip Breadth, Standing	2008	13.07	0.02	0.69	0.01	5.26	11.1	15.7	4.6	.190
23	Shoulder (Bideltoid) Breadth	2008	17.91	0.02	0.91	0.01	5.09	15.4	22.7	7.3	.261
24	Forearm-Forearm Breadth	2008	17.98	0.03	1.44	0.02	7.98	14.3	25.6	11.3	.262
25	Hip Breadth, Sitting	2008	13.45	0.02	0.79	0.01	5.90	11.3	17.0	5.7	.196

Table 4. STATISTICAL VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	N	Mean	SE(M)	S.D.	Values in Inches				Range		Stature ratio
						SE(SD)	V(%)	Min.	Max.	Total		
CIRCUMFERENCES												
26	Neck Circumference	2008	14.84	0.02	0.75	0.01	5.06	12.2	17.9	5.7	.216	
27	Shoulder Circumference	2008	44.73	0.05	2.27	0.04	5.07	39.1	55.3	16.2	.651	
28	Chest Circumference	2008	37.11	0.05	2.30	0.04	6.19	31.7	49.0	17.3	.540	
29	Waist Circumference	2008	31.22	0.06	2.49	0.04	7.99	25.0	43.6	18.6	.454	
30	Hip (Buttock) Circumference	2008	37.34	0.05	2.06	0.03	5.52	31.5	45.6	14.1	.543	
31	Upper Thigh Circumference	2008	22.17	0.04	1.66	0.03	7.48	16.7	28.8	12.1	.323	
32	Lower Thigh Circumference	2008	15.77	0.03	1.26	0.02	8.00	12.0	20.9	8.9	.229	
33	Calf Circumference	2008	14.63	0.02	0.92	0.01	6.32	11.5	17.9	6.4	.213	
34	Ankle Circumference	2008	8.92	0.01	0.53	0.01	5.93	7.3	11.0	3.7	.130	
35	Vert. Trunk Circum., Standing	2008	64.92	0.07	2.92	0.05	4.49	56.7	76.3	19.6	.945	
36	Scye Circumference	2008	17.59	0.03	1.16	0.02	6.58	14.5	22.4	8.1	.256	
37	Biceps Circum., Relaxed	2008	11.69	0.02	0.93	0.01	7.98	9.0	15.6	6.6	.170	
38	Biceps Circum., Flexed	2008	12.77	0.02	0.95	0.02	7.45	9.6	16.7	7.1	.186	
39	Forearm Circum., Flexed	2008	11.58	0.02	0.74	0.01	6.41	9.1	14.6	5.5	.169	
40	Wrist Circumference	2008	6.70	0.01	0.32	0.01	4.74	5.8	7.7	1.9	.097	
SURFACE MEASUREMENTS												
41	Shoulder Length	2008	6.47	0.01	0.55	0.01	8.53	4.0	8.2	4.2	.094	
42	Interscye Breadth	2008	15.25	0.03	1.20	0.02	7.85	11.7	20.8	9.1	.222	
43	Interscye, Maximum	2008	20.40	0.03	1.34	0.02	6.56	15.7	25.6	9.9	.297	
44	Waist Back Length	2008	17.59	0.03	1.37	0.02	7.81	13.9	22.1	8.2	.256	
45	Sleeve Inseam Length	2008	19.02	0.02	0.99	0.02	5.20	15.9	22.6	6.7	.277	
46	Sleeve Length	2008	33.96	0.03	1.48	0.02	4.36	29.3	39.0	9.7	.494	

Table 4. STATISTICAL VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Values in Inches								Stature ratio	
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range			
								Min.	Max.		Total
HEAD AND FACE MEASUREMENTS											
47	Head Circumference	2008	22.10	0.01	0.61	0.01	2.74	20.12	24.21	4.09	.322
48	Head Length	2008	7.65	0.01	0.28	0.00	3.73	6.65	8.70	2.05	.111
49	Occiput-Nasal Root	2008	7.51	0.01	0.28	0.00	3.77	6.54	8.54	2.00	.109
50	Occiput-External Canthus	2008	6.83	0.01	0.38	0.01	5.60	5.59	7.87	2.28	.099
51	Occiput-Tragion	2008	4.11	0.01	0.48	0.01	11.56	2.64	5.39	2.75	.060
52	Occiput-Pronasale	2008	8.72	0.01	0.32	0.01	3.65	7.60	9.80	2.20	.127
53	Head Breadth	2008	6.01	0.01	0.22	0.00	3.74	5.12	6.85	1.73	.087
54	Bitragion Breadth	2008	5.30	0.00	0.22	0.00	4.09	4.45	6.06	1.61	.077
55	Head Height (Tragion-Vertex)	2008	5.27	0.01	0.27	0.00	5.10	4.29	6.10	1.81	.077
56	Face Length (Ment.-Nas.Root)	2008	4.73	0.01	0.25	0.00	5.39	3.86	5.63	1.77	.069
57	Face Breadth (Bizygomatic)	2008	5.50	0.00	0.21	0.00	3.86	4.80	6.26	1.46	.080
58	Interpillary Breadth	2008	2.39	0.00	0.15	0.00	6.38	1.89	2.87	0.98	.035
HAND MEASUREMENTS											
59	Hand Length	2008	7.46	0.01	0.37	0.01	4.91	5.98	8.74	2.76	.109
60	Palm Length	2008	4.15	0.01	0.23	0.00	5.64	3.27	4.92	1.65	.060
61	Hand Breadth	2008	3.49	0.00	0.17	0.00	4.98	3.03	4.29	1.26	.051
62	Hand Circumference	2008	8.53	0.01	0.44	0.01	5.10	7.13	10.08	2.95	.124
63	Thumb Crotch Length	2008	1.96	0.00	0.21	0.00	10.87	1.22	2.72	1.50	.029
FOOT MEASUREMENTS											
64	Foot Length	2008	10.51	0.01	0.51	0.01	4.84	8.86	12.32	3.46	.153
65	Instep Length	2008	7.71	0.01	0.42	0.01	5.41	6.14	9.17	3.02	.112
66	Ball of Foot Breadth	2008	3.86	0.00	0.21	0.00	5.32	3.23	4.65	1.42	.056
67	Heel Breadth	2008	2.69	0.00	0.17	0.00	6.42	2.05	3.39	1.34	.039
68	Ball of Foot Circumference	2008	9.89	0.01	0.51	0.01	5.20	8.07	11.57	3.50	.144
69	Instep Circumference	2008	10.37	0.01	0.57	0.01	5.47	8.35	12.24	3.89	.151
70	Heel-Ankle Circumference	2007	13.44	0.01	0.63	0.01	4.71	11.34	15.75	4.41	.196
Age (years)		2008	20.88	0.06	2.87	0.05	13.74	17.0	43.0	26.0	

b. Tables of Percentile Values

The second set of tables (Table 5 in centimeters and Table 6 in inches) shows selected percentile values for all of the seventy anthropometric measurements, from the 1st up to the 99th percentile. In addition, the range or spread from the 1st to the 99th percentile is indicated for each measurement. The range is obtained by subtracting the 1st percentile value from the 99th percentile value. In these tables, the median is indicated by the 50th percentile value.

Table 5. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
1	Weight (kilograms)	55.6	57.0	59.4	61.8	66.2	71.8	78.2	84.5	88.5	93.3	96.6	41.0
STANDING MEASUREMENTS													
2	Stature	161.3	162.5	164.5	166.5	170.1	174.4	178.8	182.9	185.4	188.2	190.0	28.7
3	Cervicale Height	136.3	137.7	139.9	141.9	145.3	149.4	153.7	157.6	160.0	162.6	164.3	28.0
4	Shoulder (Acromiale) Height	131.2	132.4	134.4	136.4	139.8	143.8	148.0	151.8	154.2	156.9	158.7	27.5
5	Waist (Iliocristale) Height	93.9	95.6	97.8	99.6	102.5	105.9	109.4	112.8	114.9	117.0	118.4	24.5
6	Crotch Height	73.3	74.6	76.5	78.1	80.8	83.8	87.0	90.0	91.8	93.7	95.0	21.7
7	Kneecap (Patella) Height	45.6	46.3	47.5	48.5	50.4	52.6	55.0	57.3	58.6	60.1	61.1	15.5
8	Calf Height	29.9	30.6	31.6	32.6	34.2	36.0	37.9	39.6	40.6	41.7	42.4	12.5
9	Functional (Thumb-Tip) Reach	69.6	70.9	72.7	74.3	77.0	80.2	83.5	86.6	88.6	90.8	92.3	22.7
SITTING MEASUREMENTS													
10	Vertical Reach, Sitting	124.9	126.4	128.6	130.6	133.9	137.7	141.6	145.2	147.8	149.6	151.4	26.5
11	Sitting Height	83.1	83.9	85.2	86.4	88.6	91.0	93.4	95.6	96.9	98.4	99.4	16.3
12	Eye Height, Sitting	70.7	71.6	72.9	74.2	76.4	78.8	81.0	82.9	84.0	85.2	86.1	15.4
13	Mid-Shoulder Height, Sitting	54.9	55.8	57.2	58.3	60.2	62.4	64.6	66.6	67.7	68.8	69.5	14.6
14	Shoulder-Elbow Length	33.0	33.4	34.1	34.7	35.8	37.1	38.4	39.5	40.2	41.0	41.5	8.5
15	Elbow-Fingertip Length	42.9	43.5	44.4	45.1	46.3	47.7	49.2	50.8	51.7	52.7	53.4	10.5

Table 5. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Percentiles in Centimeters									Range (1st-99th)		
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th		98th	
SITTING MEASUREMENTS (continued)													
16	Knee Height, Sitting	48.4	49.0	50.0	50.8	52.4	54.2	56.0	57.7	58.6	59.6	60.2	11.8
17	Popliteal Height, Sitting	40.3	41.1	42.0	42.8	44.1	45.6	47.3	49.0	50.0	51.0	51.4	11.1
18	Buttock-Knee Length	53.5	54.2	55.2	56.1	57.6	59.4	61.3	63.2	64.2	65.3	66.0	12.5
19	Buttock-Popliteal Length	44.6	45.2	46.1	46.9	48.3	50.0	51.8	53.5	54.5	55.6	56.2	11.6
BREATH MEASUREMENTS													
20	Chest Depth	19.5	19.9	20.6	21.2	22.1	23.1	24.4	25.6	26.4	27.3	28.0	8.5
21	Chest Breadth	26.9	27.2	27.8	28.4	29.4	30.6	32.0	33.2	34.0	34.9	35.6	8.7
22	Hip Breadth, Standing	29.5	29.9	30.5	31.0	32.0	33.1	34.3	35.5	36.2	37.2	37.8	8.3
23	Shoulder (Bideltoïd) Breadth	40.5	41.0	41.8	42.6	43.9	45.4	46.9	48.4	49.5	50.9	52.0	11.5
24	Forearm-Forearm Breadth	38.2	39.0	40.2	41.3	43.2	45.4	47.8	50.3	52.0	54.2	55.8	17.6
25	Hip Breadth, Sitting	30.0	30.4	31.1	31.8	32.8	34.0	35.4	36.8	37.7	38.8	39.7	9.7
CIRCUMFERENCES													
26	Neck Circumference	33.5	34.0	34.7	35.4	36.4	37.6	38.9	40.2	41.0	41.9	42.6	9.1
27	Shoulder Circumference	101.4	102.7	104.7	106.5	109.7	113.3	117.1	121.0	123.6	126.9	129.5	28.1
28	Chest Circumference	82.5	83.7	85.5	87.2	90.2	93.8	97.8	101.9	104.6	107.9	110.2	27.7

Table 5. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Percentiles in Centimeters										Range 29th. (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
CIRCUMFERENCES (continued)													
29	Waist Circumference	67.2	68.4	70.2	71.9	74.9	78.6	82.8	87.4	90.8	95.2	98.6	31.4
30	Hip (Buttock) Circumference	84.1	85.2	86.9	88.5	91.3	94.5	98.0	101.6	104.0	107.1	109.4	25.3
31	Upper Thigh Circumference	47.4	48.4	49.8	51.1	53.4	56.1	59.0	61.9	63.7	65.8	67.3	19.9
32	Lower Thigh Circumference	33.7	34.3	35.3	36.2	37.8	39.8	42.0	44.2	45.7	47.7	49.1	15.4
33	Calf Circumference	32.0	32.5	33.4	34.2	35.6	37.1	38.7	40.2	41.1	42.2	43.1	11.1
34	Ankle Circumference	19.7	20.1	20.6	21.0	21.7	22.6	23.5	24.4	25.0	25.8	26.3	6.6
35	Vert. Trunk Circum., Stand.	149.5	150.8	153.1	155.4	159.6	164.4	169.9	174.7	177.6	180.7	182.8	33.3
36	Scye Circumference	38.8	39.2	40.1	41.0	42.6	44.5	46.5	48.4	49.8	51.6	53.0	14.2
37	Biceps Circum., Relaxed	24.7	25.2	26.0	26.7	28.0	29.6	31.2	32.8	33.8	35.0	36.0	11.3
38	Biceps Circum., Flexed	27.3	27.8	28.7	29.4	30.8	32.3	34.0	35.6	36.6	37.8	38.7	11.4
39	Forearm Circum., Flexed	25.5	25.9	26.5	27.0	28.1	29.3	30.6	31.9	32.6	33.5	34.0	8.5
40	Wrist Circumference	15.2	15.4	15.7	16.0	16.4	17.0	17.5	18.1	18.4	18.8	19.0	3.8
SURFACE MEASUREMENTS													
41	Shoulder Length	12.9	13.4	14.1	14.7	15.5	16.4	17.4	18.2	18.8	19.2	19.5	6.6
42	Interscye Breadth	31.9	32.6	33.8	34.8	36.6	38.7	40.7	42.6	43.8	45.1	46.0	14.1
43	Interscye, Maximum	43.9	44.8	46.2	47.4	49.5	51.8	54.1	56.1	57.4	58.9	59.9	16.0

Table 5. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
SURFACE MEASUREMENTS (continued)													
44	Waist Back Length	37.2	38.0	39.2	40.2	42.1	44.5	47.0	49.4	50.7	52.0	52.8	15.6
45	Sleeve Inseam Length	42.7	43.4	44.3	45.1	46.6	48.2	50.0	51.6	52.6	53.6	54.3	11.5
46	Sleeve Length	78.0	78.9	80.2	81.4	83.6	86.2	88.8	91.2	92.6	94.1	94.9	16.9
HEAD AND FACE MEASUREMENTS													
47	Head Circumference	52.6	53.0	53.6	54.1	55.1	56.1	57.2	58.1	58.7	59.4	59.9	7.3
48	Head Length	17.8	18.0	18.2	18.5	18.9	19.4	19.9	20.4	20.6	20.9	21.1	3.3
49	Occiput-Nasal Root	17.4	17.6	17.9	18.2	18.6	19.1	19.6	20.0	20.3	20.6	20.8	3.4
50	Occiput-External Canthus	15.2	15.4	15.8	16.1	16.6	17.3	18.0	18.6	19.0	19.3	19.6	4.4
51	Occiput-Tragion	8.2	8.3	8.6	8.9	9.5	10.4	11.3	12.1	12.6	12.9	13.0	4.9
52	Occiput-Pronasale	20.2	20.5	20.8	21.1	21.6	22.2	22.7	23.2	23.4	23.8	24.0	3.8
53	Head Breadth	14.0	14.1	14.4	14.6	14.9	15.3	15.6	16.0	16.2	16.5	16.6	2.6
54	Bitragion Breadth	12.2	12.3	12.6	12.8	13.1	13.4	13.8	14.2	14.4	14.6	14.8	2.6
55	Head Height (Tragion-Vertex)	11.8	12.0	12.3	12.5	12.9	13.4	13.8	14.3	14.5	14.8	15.0	3.2
56	Face Length (Ment.-Nas. Root)	10.5	10.7	11.0	11.2	11.6	12.0	12.5	12.8	13.1	13.3	13.5	3.0
57	Face Breadth (Bizygomatic)	12.7	12.9	13.1	13.3	13.6	14.0	14.3	14.6	14.9	15.1	15.3	2.6
58	Interpupillary Breadth	5.2	5.3	5.4	5.6	5.8	6.1	6.4	6.6	6.7	6.9	7.0	1.8

Table 5. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
HAND MEASUREMENTS													
59	Hand Length	16.8	17.1	17.5	17.8	18.3	18.9	19.5	20.2	20.6	21.0	21.3	4.5
60	Palm Length	9.2	9.3	9.6	9.8	10.1	10.5	10.9	11.3	11.6	11.9	12.1	2.9
61	Hand Breadth	7.9	8.0	8.2	8.3	8.6	8.8	9.2	9.4	9.6	9.8	9.9	2.0
62	Hand Circumference	19.3	19.5	19.9	20.3	20.9	21.7	22.4	23.1	23.5	24.0	24.3	5.0
63	Thumb Grotch Length	3.8	3.9	4.1	4.3	4.6	5.0	5.3	5.7	5.9	6.2	6.4	2.6
FOOT MEASUREMENTS													
64	Foot Length	23.9	24.2	24.6	25.1	25.8	26.7	27.5	28.4	28.9	29.5	30.0	6.1
65	Instep Length	17.1	17.4	17.8	18.2	18.9	19.6	20.3	20.9	21.4	21.9	22.2	5.1
66	Ball of Foot Breadth	8.6	8.7	9.0	9.2	9.4	9.8	10.1	10.5	10.7	10.9	11.1	2.5
67	Heel Breadth	5.9	6.0	6.2	6.3	6.5	6.8	7.1	7.4	7.6	7.8	8.0	2.1
68	Ball of Foot Circumference	22.2	22.5	23.0	23.4	24.2	25.1	26.0	26.8	27.3	27.9	28.3	6.1
69	Instep Circumference	23.0	23.4	24.0	24.5	25.4	26.3	27.3	28.2	28.8	29.3	29.6	5.6
70	Heel-Ankle Circumference	30.6	31.0	31.6	32.1	33.0	34.1	35.2	36.2	36.9	37.6	38.1	7.5
Age (years)													
		17.8	18.0	18.2	18.5	19.2	20.2	21.6	23.6	25.8	30.6	34.3	16.5
Mean Age - 20.88 years Number of men - 2008													

Table 6. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
1	Weight (pounds)	122.5	125.7	131.0	136.2	146.0	158.4	172.3	186.2	195.1	205.6	212.9	90.4
STANDING MEASUREMENTS													
2	Stature	63.5	64.0	64.8	65.6	67.0	68.7	70.4	72.0	73.0	74.1	74.8	11.3
3	Cervicale Height	53.7	54.2	55.1	55.8	57.2	58.8	60.5	62.1	63.0	64.0	64.7	11.0
4	Shoulder (Acromiale) Height	51.6	52.1	52.9	53.7	55.0	56.6	58.3	59.8	60.7	61.8	62.5	10.9
5	Waist (Iliocristale) Height	37.0	37.6	38.5	39.2	40.4	41.7	43.1	44.4	45.2	46.1	46.6	9.6
6	Crotch Height	28.9	29.4	30.1	30.7	31.8	33.0	34.3	35.4	36.1	36.9	37.4	8.5
7	Kneecap (Patella) Height	18.0	18.2	18.7	19.1	19.8	20.7	21.7	22.6	23.1	23.7	24.0	6.0
8	Calf Height	11.8	12.0	12.4	12.8	13.5	14.2	14.9	15.6	16.0	16.4	16.7	4.9
9	Functional (Thumb-Tip) Reach	27.4	27.9	28.6	29.2	30.3	31.6	32.9	34.1	34.9	35.8	36.4	9.0
SITTING MEASUREMENTS													
10	Vertical Reach, Sitting	49.2	49.8	50.5	51.4	52.7	54.2	55.7	57.2	58.0	59.0	59.6	10.4
11	Sitting Height	32.7	33.0	33.6	34.0	34.9	35.8	36.8	37.6	38.2	38.8	39.2	6.5
12	Eye Height, Sitting	27.8	28.2	28.7	29.2	30.1	31.0	31.9	32.6	33.1	33.6	33.9	6.1
13	Mid-Shoulder Height, Sitting	21.6	22.0	22.5	23.0	23.7	24.6	25.4	26.2	26.7	27.1	27.4	5.8
14	Shoulder-Elbow Length	13.0	13.2	13.4	13.7	14.1	14.6	15.1	15.6	15.8	16.1	16.3	3.3
15	Elbow-Fingertip Length	16.9	17.1	17.5	17.8	18.2	18.8	19.4	20.0	20.4	20.8	21.0	4.1

Table 6. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Percentiles in Inches								Range 99th (1st-99th)			
		1st	2nd	5th	10th	25th	Median 50th	75th	90th		95th	98th	
SITTING MEASUREMENTS (continued)													
16	Knee Height, Sitting	19.1	19.3	19.7	20.0	20.6	21.3	22.1	22.7	23.1	23.5	23.7	4.6
17	Popliteal Height, Sitting	15.9	16.2	16.6	16.9	17.4	18.0	18.6	19.3	19.7	20.1	20.2	4.3
18	Buttock-Knee Length	21.1	21.4	21.8	22.1	22.7	23.4	24.2	24.9	25.3	25.7	26.0	4.9
19	Buttock-Popliteal Length	17.6	17.8	18.2	18.5	19.0	19.7	20.4	21.1	21.5	21.9	22.2	4.6
BREATH MEASUREMENTS													
20	Chest Depth	7.7	7.8	8.1	8.3	8.7	9.1	9.6	10.1	10.4	10.8	11.0	3.3
21	Chest Breadth	10.6	10.7	11.0	11.2	11.6	12.1	12.6	13.1	13.4	13.8	14.0	3.4
22	Hip Breadth, Standing	11.6	11.8	12.0	12.2	12.6	13.0	13.5	14.0	14.3	14.6	14.9	3.3
23	Shoulder (Bideltoïd) Breadth	16.0	16.2	16.5	16.8	17.3	17.9	18.5	19.1	19.5	20.0	20.4	4.5
24	Forearm-Forearm Breadth	15.0	15.4	15.8	16.2	17.0	17.9	18.8	19.8	20.5	21.3	22.0	7.0
25	Hip Breadth, Sitting	11.8	12.0	12.3	12.5	12.9	13.4	13.9	14.5	14.8	15.3	15.6	3.8
CIRCUMFERENCES													
26	Neck Circumference	13.2	13.4	13.7	13.9	14.3	14.8	15.3	15.8	16.1	16.5	16.8	3.6
27	Shoulder Circumference	39.9	40.4	41.2	41.9	43.2	44.6	46.1	47.6	48.7	50.0	51.0	11.1
28	Chest Circumference	32.5	32.9	33.7	34.3	35.5	36.9	38.5	40.1	41.2	42.5	53.4	10.9

Table 6. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
CIRCUMFERENCES (continued)													
29	Waist Circumference	26.5	26.9	27.6	28.3	29.5	30.9	32.6	34.4	35.7	37.5	38.8	12.4
30	Hip (Buttock) Circumference	33.1	33.5	34.2	34.8	35.9	37.2	38.6	40.0	40.9	42.2	43.1	10.0
31	Upper Thigh Circumference	18.7	19.0	19.6	20.1	21.0	22.1	23.2	24.4	25.1	25.9	26.5	7.9
32	Lower Thigh Circumference	13.2	13.5	13.9	14.2	14.9	15.7	16.5	17.4	18.0	18.8	19.3	6.1
33	Calf Circumference	12.6	12.8	13.2	13.5	14.0	14.6	15.2	15.8	16.2	16.6	17.0	4.4
34	Ankle Circumference	7.8	7.9	8.1	8.3	8.6	8.9	9.2	9.6	9.8	10.1	10.4	2.6
35	Vert. Trunk Circum., Stand.	58.8	59.4	60.3	61.2	62.8	64.8	66.9	68.8	69.9	71.2	72.0	13.2
36	Scye Circumference	15.3	15.4	15.8	16.2	16.8	17.5	18.3	19.1	19.6	20.3	20.8	5.5
37	Biceps Circum., Relaxed	9.7	9.9	10.2	10.5	11.0	11.6	12.3	12.9	13.3	13.8	14.2	4.5
38	Biceps Circum., Flexed	10.7	11.0	11.3	11.6	12.1	12.7	13.4	14.0	14.4	14.9	15.2	4.5
39	Forearm Circum., Flexed	10.0	10.2	10.4	10.6	11.1	11.6	12.1	12.6	12.8	13.2	13.4	3.4
40	Wrist Circumference	6.0	6.1	6.2	6.3	6.5	6.7	6.9	7.1	7.2	7.4	7.5	1.5
SURFACE MEASUREMENTS													
41	Shoulder Length	5.1	5.3	5.6	5.8	6.1	6.5	6.8	7.2	7.4	7.6	7.7	2.6
42	Interscye Breadth	12.6	12.8	13.3	13.7	14.4	15.2	16.0	16.8	17.2	17.8	18.1	5.5
43	Interscye, Maximum	17.3	17.6	18.2	18.7	19.5	20.4	21.3	22.1	22.6	23.2	23.6	6.3

Table 6. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
SURFACE MEASUREMENTS (continued)													
44	Waist Back Length	14.6	15.0	15.4	15.8	16.6	17.5	18.5	19.4	20.0	20.5	20.8	6.2
45	Sleeve Inseam Length	16.8	17.1	17.4	17.8	18.3	19.0	19.7	20.3	20.7	21.1	21.4	4.6
46	Sleeve Length	30.7	31.1	31.6	32.1	32.9	33.9	35.0	35.9	36.5	37.0	37.4	6.7
HEAD AND FACE MEASUREMENTS													
47	Head Circumference	20.72	20.86	21.10	21.32	21.69	22.10	22.50	22.87	23.10	23.37	23.57	2.85
48	Head Length	7.01	7.08	7.19	7.28	7.45	7.65	7.85	8.02	8.13	8.24	8.31	1.30
49	Occiput-Nasal Root	6.84	6.92	7.04	7.15	7.32	7.51	7.70	7.87	7.98	8.11	8.21	1.37
50	Occiput-External Canthus	5.98	6.07	6.21	6.33	6.55	6.82	7.09	7.33	7.47	7.62	7.70	1.72
51	Occiput-Tragion	3.21	3.28	3.39	3.51	3.75	4.08	4.45	4.78	4.95	5.08	5.13	1.92
52	Occiput-Pronasale	7.97	8.05	8.18	8.30	8.50	8.72	8.93	9.12	9.23	9.35	9.44	1.47
53	Head Breadth	5.50	5.56	5.65	5.73	5.86	6.01	6.16	6.30	6.39	6.49	6.55	1.05
54	Bitragion Breadth	4.79	4.86	4.95	5.03	5.15	5.30	5.44	5.58	5.66	5.75	5.82	1.03
55	Head Height (Tragion-Vertex)	4.66	4.72	4.83	4.93	5.09	5.27	5.45	5.61	5.71	5.84	5.92	1.27
56	Face Length (Ment.-Nas. Root)	4.13	4.20	4.31	4.41	4.56	4.73	4.90	5.06	5.15	5.25	5.31	1.18
57	Face Breadth (Eizygomatic)	5.00	5.06	5.15	5.23	5.36	5.50	5.64	5.77	5.85	5.95	6.02	1.02
58	Interpupillary Breadth	2.05	2.09	2.14	2.20	2.29	2.39	2.50	2.59	2.65	2.71	2.75	0.70

Table 6. PERCENTILE VALUES FOR TOTAL MARINE CORPS SERIES (continued)

No.	<u>Measurements</u>	Percentiles in Inches											Range (1st-99th)
		<u>1st</u>	<u>2nd</u>	<u>5th</u>	<u>10th</u>	<u>25th</u>	<u>Median 50th</u>	<u>75th</u>	<u>90th</u>	<u>95th</u>	<u>98th</u>	<u>99th</u>	
HAND MEASUREMENTS													
59	Hand Length	6.62	6.73	6.83	7.01	7.21	7.44	7.69	7.93	8.09	8.28	8.40	1.78
60	Palm Length	3.60	3.68	3.78	3.86	3.99	4.14	4.30	4.45	4.55	4.67	4.75	1.15
61	Hand Breadth	3.13	3.16	3.21	3.27	3.37	3.48	3.60	3.72	3.78	3.86	3.91	0.78
62	Hand Circumference	7.59	7.68	7.83	7.98	8.23	8.53	8.82	9.09	9.26	9.45	9.58	1.99
63	Thumb Crotch Length	1.50	1.54	1.61	1.69	1.82	1.96	2.10	2.23	2.32	2.42	2.50	1.00
FOOT MEASUREMENTS													
64	Foot Length	9.40	9.52	9.70	9.87	10.17	10.50	10.84	11.17	11.38	11.62	11.80	2.40
65	Instep Length	6.73	6.85	7.03	7.18	7.43	7.71	7.98	8.24	8.41	8.61	8.76	2.03
66	Ball of Foot Breadth	3.38	3.44	3.53	3.60	3.72	3.85	3.99	4.12	4.20	4.30	4.38	1.00
67	Heel Breadth	2.32	2.36	2.42	2.48	2.57	2.68	2.79	2.91	2.99	3.08	3.15	0.83
68	Ball of Foot Circumference	8.73	8.85	9.04	9.23	9.55	9.89	10.23	10.54	10.73	10.97	11.15	2.42
69	Instep Circumference	9.04	9.22	9.46	9.66	9.98	10.36	10.75	11.12	11.32	11.54	11.65	2.61
70	Heel-Ankle Circumference	12.06	12.21	12.43	12.64	12.99	13.41	13.85	14.27	14.52	14.81	15.00	2.94
Age (years)													
		17.8	18.0	18.2	18.5	19.2	20.2	21.6	23.6	25.8	30.6	34.3	16.5

Mean Age - 20.88 years Number of men - 2003

c. Tables of Design Limits

Anthropometric data may be presented or summarized in various ways; these data also may be utilized or applied in a variety of methods. A listing of statistical values for body measurements (Tables 3 and 4), such as means and standard deviations, is conventional, but data in this form are not very useful for design purposes. Minimum and maximum values for a measurement indicate the range of variation for that measurement, but seldom are attempts made to accommodate these extremes in design and sizing.

The use of percentile values (Tables 5 and 6) is more realistic in the design and sizing of clothing and equipment, since the various percentile values indicate limits of the measurement for particular segments of the population sample. Thus, the 5th and 95th percentile values, for example, indicate the limits of a measurement for 90 percent of the population, since the smallest five percent and the largest five percent are, by definition, left out of consideration.

The use of percentile values is practical, as well as convenient. However, the statistical concept of percentile values for anthropometric data may be confusing or not readily understandable for some who require these data for design purposes. Percentile values, in a different way, may be thought of as design limits for various specified segments of the population under consideration — in fact, it is not even necessary to refer to percentile values in this interpretation.

Accordingly, tables of design limits may be prepared, derived from the percentile values for anthropometric measurements. Tables 7 (in centimeters) and 8 (in inches) are tables of design limits based upon U. S. Marine Corps data. In these tables, the columns headed 100, 98, 95, 90, 80, and 50 percent indicate the segments of the sample which would be expected to be accommodated or fitted by using the two values shown for the anthropometric measurements. In the case of stature, for example, 50 percent of the Marines are between 67.0 and 70.4 inches tall, 95 percent are between 64.1 and 73.8 inches tall, while the total sample (100 percent) is between 61.7 and 77.4 inches tall. A sizing system utilizing chest circumferences of between 32.4 and 43.4 inches would accommodate 98 percent of Marines, whereas design limits of 35.5 and 38.5 inches in chest circumference would fit only 50 percent of the Marine population.

It is obvious that as the spread or range between two values for a dimension is reduced, the percentage of the population that can be fitted or accommodated will be decreased. The values in these tables indicating 100 percent coverage are the minimum and maximum values for any dimension. The 98 percent coverage is based upon the 1st and 99th percentile values, the 95 percent coverage is based upon the 2½ and 97½ percentile values, and the 90 percent coverage is based upon the 5th and 95th percentile values. The 50 percent coverage, of course, is based upon the 25th and 75th percentile values, indicating the middle half of the population.

The use of so-called design limits, based upon percentile values, is an even more practical and flexible method for applying anthropometric data in the solution of design and sizing problems. The design limits actually represent guide lines or parameters for initial design and sizing. Conversely, these design limits also may be used in another way, in that they may be utilized to estimate the degree of coverage or accommodation for items of clothing or equipment which have been designed, produced, and are already in use. The design limits therefore may also be of assistance when considering redesign or resizing in order to improve fit, accommodation, and logistic efficiency.

Table 7. U. S. MARINE CORPS DESIGN LIMITS

No.	Measurements	Values in Centimeters						
		100 percent	percent	95 percent	90 percent	80 percent	50 percent	
1	Weight (kilograms)	71.7	55.6	57.5	59.4	61.8	66.2	78.2
STANDING MEASUREMENTS								
2	Stature	156.8	161.3	162.9	164.5	166.5	170.1	178.8
3	Cervicale Height	131.8	136.3	138.2	139.9	141.9	145.3	153.7
4	Shoulder Height	125.2	131.2	132.8	134.4	136.4	139.8	148.0
5	Waist Height	90.2	93.9	96.1	97.8	99.6	102.5	109.4
6	Crotch Height	67.2	73.3	75.0	76.5	78.1	80.8	87.0
7	Kneecap Height	42.8	45.6	46.6	47.5	48.5	50.4	55.0
8	Calf Height	28.0	29.9	30.8	31.6	32.6	34.2	37.9
9	Functional Reach	66.2	69.6	71.3	72.7	74.3	77.0	83.5
SITTING MEASUREMENTS								
10	Vertical Reach, Sitting	121.8	124.9	126.9	128.6	130.6	133.9	141.6
11	Sitting Height	80.2	83.1	84.2	85.2	86.4	88.6	93.4
12	Eye Height, Sitting	67.8	70.7	71.9	72.9	74.2	76.4	81.0
13	Mid-Shoulder Height	51.6	54.9	56.1	57.2	58.3	60.2	64.6
14	Shoulder-Elbow Length	31.8	33.0	33.6	34.1	34.7	35.8	38.4
15	Elbow-Fingertip Length	39.8	42.9	43.7	44.4	45.1	46.3	49.2

Table 7. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Centimeters											
		100 percent	98 percent	95 percent	90 percent	80 percent	50 percent						
SITTING MEASUREMENTS (continued)													
16	Knee Height, Sitting	45.8	63.7	48.4	60.3	49.2	59.4	50.0	58.6	50.8	57.7	52.4	56.0
17	Popliteal Height, Sitting	37.3	52.9	40.3	51.4	41.3	50.8	42.0	50.0	42.8	49.0	44.1	47.3
18	Buttock-Knee Length	51.7	68.2	53.5	66.0	54.4	65.1	55.2	64.2	56.1	63.2	57.6	61.3
19	Buttock-Popliteal Length	43.0	58.8	44.6	56.2	45.4	55.4	46.1	54.5	46.9	53.5	48.3	51.8
BREATH MEASUREMENTS													
20	Chest Depth	18.3	30.2	19.5	28.0	20.1	27.1	20.6	26.4	21.2	25.6	22.1	24.4
21	Chest Breadth	25.6	38.2	26.9	35.6	27.3	34.7	27.8	34.0	28.4	33.2	29.4	32.0
22	Hip Breadth, Standing	28.3	39.8	29.5	37.8	30.0	37.0	30.5	36.2	31.0	35.5	32.0	34.3
23	Shoulder Breadth	39.1	57.7	40.5	52.0	41.2	50.6	41.8	49.5	42.6	48.4	43.9	46.9
24	Forearm-Forearm Breadth	36.3	65.0	38.2	55.8	39.2	53.7	40.2	52.0	41.2	50.3	43.2	47.8
25	Hip Breadth, Sitting	28.8	43.1	30.0	39.7	30.6	38.6	31.1	37.7	31.8	36.8	32.8	35.4
CIRCUMFERENCES													
26	Neck Circumference	31.1	45.5	33.5	42.6	34.2	41.7	34.7	41.0	35.4	40.2	36.4	38.9
27	Shoulder Circumference	99.2	140.4	101.4	129.5	103.1	126.2	104.7	123.6	106.5	121.0	109.7	117.1
28	Chest Circumference	80.4	124.4	82.5	110.2	84.1	107.2	85.5	104.6	87.2	101.9	90.2	97.8

Table 7. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Centimeters											
		100 percent	98 percent	95 percent	90 percent	80 percent	50 percent						
CIRCUMFERENCES (continued)													
29	Waist Circumference	63.5	110.7	67.2	98.6	68.7	94.2	70.2	90.8	71.9	87.4	74.9	82.8
30	Hip Circumference	80.0	115.9	84.1	109.4	85.5	106.4	86.9	104.0	88.5	101.6	91.3	98.0
31	Upper Thigh Circumference	42.3	73.2	47.4	67.3	48.7	65.4	49.8	63.7	51.1	61.9	53.4	59.0
32	Lower Thigh Circumference	30.5	53.2	33.7	49.1	34.5	47.2	35.3	45.7	36.2	44.2	37.8	42.0
33	Calf Circumference	29.3	45.4	32.0	43.1	32.7	42.0	33.4	41.1	34.2	40.2	35.6	38.7
34	Ankle Circumference	18.5	28.0	19.7	26.3	20.2	25.6	20.6	25.0	21.0	24.4	21.7	23.5
35	Vertical Trunk Circum.	144.0	193.7	149.5	182.8	151.3	180.1	153.1	177.6	155.4	174.7	159.6	169.9
36	Scye Circumference	36.3	57.0	38.8	53.0	39.4	51.2	40.1	49.8	41.0	48.4	42.6	46.5
37	Biceps Circum., Relaxed	22.8	39.7	24.7	36.0	25.4	34.8	26.0	33.8	26.7	32.8	28.0	31.2
38	Biceps Circum., Flexed	24.4	42.5	27.3	38.7	28.0	37.6	28.7	36.6	29.4	35.6	30.8	34.0
39	Forearm Circum., Flexed	23.1	37.0	25.5	34.0	26.0	33.3	26.5	32.6	27.0	31.9	28.1	30.6
40	Wrist Circumference	14.7	19.6	15.2	19.0	15.5	18.7	15.7	18.4	16.0	18.1	16.4	17.5
SURFACE MEASUREMENTS													
41	Shoulder Length	10.2	20.9	12.9	19.5	13.6	19.2	14.1	18.8	14.7	18.2	15.5	17.4
42	Interscye Breadth	29.6	52.8	31.9	46.0	32.9	44.8	33.8	43.8	34.8	42.6	36.6	40.7
43	Interscye, Maximum	40.0	64.9	43.9	59.8	45.1	58.5	46.2	57.4	47.4	56.1	49.5	54.1

Table 7. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Centimeters											
		100 percent	98 percent	95 percent	90 percent	80 percent	50 percent						
SURFACE MEASUREMENTS (continued)													
44	Waist Back Length	35.4	56.2	37.2	52.8	38.2	51.7	39.2	50.7	40.2	49.4	42.1	47.0
45	Sleeve Inseam Length	40.5	57.5	42.7	54.3	43.6	53.4	44.3	52.6	45.1	51.6	46.6	50.0
46	Sleeve Length	74.4	99.0	78.0	94.9	79.2	93.8	80.2	92.6	81.4	91.2	83.6	88.8
HEAD AND FACE MEASUREMENTS													
47	Head Circumference	51.1	61.5	52.6	59.9	53.1	59.2	53.6	58.7	54.1	58.1	55.1	57.2
48	Head Length	16.9	22.1	17.8	21.1	18.0	20.9	18.2	20.6	18.5	20.4	18.9	19.9
49	Occiput-Nasal Root	16.6	21.7	17.4	20.8	17.6	20.5	17.9	20.3	18.2	20.0	18.6	19.6
50	Occiput-External Canthus	14.2	20.0	15.2	19.6	15.5	19.3	15.8	19.0	16.1	18.6	16.6	18.0
51	Occiput-Tragion	6.7	13.7	8.2	13.0	8.4	12.8	8.6	12.6	8.9	12.1	9.5	11.3
52	Occiput-Pronasale	19.3	24.9	20.2	24.0	20.5	23.7	20.8	23.4	21.1	23.2	21.6	22.7
53	Head Breadth	13.0	17.4	14.0	16.6	14.2	16.4	14.4	16.2	14.6	16.0	14.9	15.6
54	Bitragion Breadth	11.3	15.4	12.2	14.8	12.4	14.6	12.6	14.4	12.8	14.2	13.1	13.8
55	Head Height	10.9	15.5	11.8	15.0	12.1	14.8	12.3	14.5	12.5	14.3	12.9	13.8
56	Face Length	9.8	14.3	10.5	13.5	10.7	13.3	11.0	13.1	11.2	12.8	11.6	12.5
57	Face Breadth	12.2	15.9	12.7	15.3	12.9	15.1	13.1	14.9	13.3	14.6	13.6	14.3
58	Interpupillary Breadth	4.8	7.3	5.2	7.0	5.3	6.8	5.4	6.7	5.6	6.6	5.8	6.4

Table 7. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Centimeters											
		<u>100 percent</u>	<u>98 percent</u>	<u>95 percent</u>	<u>90 percent</u>	<u>80 percent</u>	<u>50 percent</u>						
HAND MEASUREMENTS													
59	Hand Length	15.2	22.2	16.8	21.3	17.2	20.9	17.5	20.6	17.8	20.2	18.3	19.5
60	Palm Length	8.3	12.5	9.2	12.1	9.4	11.8	9.6	11.6	9.8	11.3	10.1	10.9
61	Hand Breadth	7.7	10.9	7.9	9.9	8.0	9.8	8.2	9.6	8.3	9.4	8.6	9.2
62	Hand Circumference	18.1	25.6	19.3	24.3	19.6	23.9	19.9	23.5	20.3	23.1	20.9	22.4
63	Thumb Crotch Length	3.1	6.9	3.8	6.4	4.0	6.1	4.1	5.9	4.3	5.7	4.6	5.3
FOOT MEASUREMENTS													
64	Foot Length	22.5	31.3	23.9	30.0	24.3	29.4	24.6	28.9	25.1	28.4	25.8	27.5
65	Instep Length	15.6	23.3	17.1	22.2	17.5	21.8	17.8	21.4	18.2	20.9	18.9	20.5
66	Ball of Foot Breadth	8.2	11.8	8.6	11.1	8.8	10.9	9.0	10.7	9.2	10.5	9.4	10.1
67	Heel Breadth	5.2	8.6	5.9	8.0	6.0	7.8	6.2	7.6	6.3	7.4	6.5	7.1
68	Ball of Foot Circumference	20.5	29.4	22.2	28.3	22.6	27.7	23.0	27.3	23.4	26.8	24.2	26.0
69	Instep Circumference	21.2	31.1	23.0	29.6	23.6	29.2	24.0	28.8	24.5	28.2	25.4	27.3
70	Heel-Ankle Circumference	28.8	30.0	30.6	38.1	31.1	37.5	31.6	36.9	32.1	36.2	33.0	35.2
Age (years)													
		17.0	43.0	17.8	34.3	18.1	29.7	18.2	25.8	18.5	23.6	19.2	21.6

Mean Age - 20.88 years Number of men - 2008

Table 8. U. S. MARINE CORPS DESIGN LIMITS

No.	Measurements	Values in Inches						
		100 percent	98 percent	95 percent	90 percent	80 percent	50 percent	
1	Weight (pounds)	101.0	122.5	126.8	131.0	136.2	146.0	172.3
STANDING MEASUREMENTS								
2	Stature	61.7	63.5	64.1	64.8	65.6	67.0	70.4
3	Cervicale Height	51.9	53.7	54.4	55.1	55.8	57.2	60.5
4	Shoulder Height	49.4	51.6	52.3	52.9	53.7	55.0	58.3
5	Waist Height	35.6	37.0	37.8	38.5	39.2	40.4	43.1
6	Crotch Height	26.6	28.9	29.5	30.1	30.7	31.8	34.3
7	Kneecap Height	16.9	18.0	18.3	18.7	19.1	19.8	21.7
8	Calf Height	11.1	11.8	12.1	12.4	12.8	13.5	14.9
9	Functional Reach	26.2	27.4	28.1	28.6	29.2	30.3	32.9
SITTING MEASUREMENTS								
10	Vertical Reach, Sitting	48.0	49.2	50.0	50.6	51.4	52.7	55.7
11	Sitting Height	31.7	32.7	33.1	33.6	34.0	34.9	36.8
12	Eye Height, Sitting	26.8	27.8	28.3	28.7	29.2	30.1	31.9
13	Mid-Shoulder Height	20.4	21.6	22.1	22.5	23.0	23.7	25.4
14	Shoulder-Elbow Length	12.5	13.0	13.2	13.4	13.7	14.1	15.1
15	Elbow-Fingertip Length	15.7	16.9	17.2	17.5	17.8	18.2	19.4

Table 8. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Inches											
		<u>100 percent</u>	<u>98 percent</u>	<u>95 percent</u>	<u>90 percent</u>	<u>80 percent</u>	<u>50 percent</u>						
SITTING MEASUREMENTS (continued)													
16	Knee Height, Sitting	18.0	25.1	19.1	23.7	19.4	23.4	19.7	23.1	20.0	22.7	20.6	22.1
17	Popliteal Height, Sitting	14.7	20.8	15.9	20.2	16.3	20.0	16.6	19.7	16.9	19.3	17.4	18.6
18	Buttock-Knee Length	20.4	26.8	21.1	26.0	21.4	25.6	21.8	25.3	22.1	24.9	22.7	24.2
19	Buttock-Popliteal Length	16.9	23.1	17.6	22.2	17.9	21.8	18.2	21.5	18.5	21.1	19.0	20.4
BREATH MEASUREMENTS													
20	Chest Depth	7.2	11.9	7.7	11.0	7.9	10.7	8.1	10.4	8.3	10.1	8.7	9.6
21	Chest Breadth	10.1	15.0	10.6	14.0	10.8	13.7	11.0	13.4	11.2	13.1	11.6	12.6
22	Hip Breadth, Standing	11.1	15.7	11.6	14.9	11.8	14.5	12.0	14.3	12.2	14.0	12.6	13.5
23	Shoulder Breadth	15.4	22.7	16.0	20.4	16.2	19.9	16.5	19.5	16.8	19.1	17.3	18.5
24	Forearm-Forearm Breadth	14.3	25.6	15.0	22.0	15.5	21.1	15.8	20.5	16.2	19.8	17.0	18.8
25	Hip Breadth, Sitting	11.3	17.0	11.8	15.6	12.0	15.2	12.3	14.8	12.5	14.5	12.9	13.9
CIRCUMFERENCES													
26	Neck Circumference	12.2	17.9	13.2	16.8	13.4	16.4	13.7	16.1	13.9	15.8	14.3	15.3
27	Shoulder Circumference	39.1	55.3	39.9	51.0	40.6	49.7	41.2	48.7	41.9	47.6	43.2	46.1
28	Chest Circumference	31.7	49.0	32.4	43.4	33.1	42.2	33.7	41.2	34.3	40.1	35.5	38.5

Table 8. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Inches											
		100 percent	98 percent	95 percent	90 percent	80 percent	50 percent						
CIRCUMFERENCES (continued)													
29	Waist Circumference	25.0	43.6	26.5	38.8	27.1	37.1	27.6	35.7	28.3	34.4	29.5	32.6
30	Hip Circumference	31.5	45.6	33.1	43.1	33.7	41.9	34.2	40.9	34.8	40.0	35.9	38.6
31	Upper Thigh Circumference	16.7	28.8	18.7	26.5	19.2	25.8	19.6	25.1	20.1	24.4	21.0	23.2
32	Lower Thigh Circumference	12.0	20.9	13.2	19.3	13.6	18.6	13.9	18.0	14.2	17.4	14.9	16.5
33	Calf Circumference	11.5	17.9	12.6	17.0	12.9	16.5	13.2	16.2	13.5	15.8	14.0	15.2
34	Ankle Circumference	7.3	11.0	7.8	10.4	7.9	10.1	8.1	9.8	8.3	9.6	8.6	9.2
35	Vertical Trunk Circum.	56.7	76.3	58.8	72.0	59.6	70.9	60.3	69.9	61.2	68.8	62.8	66.9
36	Scye Circumference	14.3	22.4	15.3	20.8	15.5	20.1	15.8	19.6	16.2	19.1	15.8	18.3
37	Biceps Circum., Relaxed	9.0	15.6	9.7	14.2	10.0	13.7	10.2	13.3	10.5	12.9	11.0	12.3
38	Biceps Circum., Flexed	9.6	16.7	10.7	15.2	11.0	14.8	11.3	14.4	11.6	14.0	12.1	13.4
39	Forearm Circum., Flexed	9.1	14.6	10.0	13.4	10.2	13.1	10.4	12.8	10.6	12.6	11.1	12.1
40	Wrist Circumference	5.8	7.7	6.0	7.5	6.1	7.4	6.2	7.2	6.3	7.1	6.5	6.9
SURFACE MEASUREMENTS													
41	Shoulder Length	4.0	8.2	5.1	7.7	5.3	7.5	5.6	7.4	5.8	7.2	6.1	6.8
42	Interscye Breadth	11.7	20.8	12.6	18.1	12.9	17.6	13.3	17.2	13.7	16.8	14.4	16.0
43	Interscye, Maximum	15.7	25.6	17.2	23.6	17.7	23.1	18.2	22.6	18.7	22.1	19.5	21.3

Table 8. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Inches											
		100 percent	98 percent	95 percent	90 percent	80 percent	50 percent						
SURFACE MEASUREMENTS (continued)													
44	Waist Back Length	13.9	22.1	14.6	20.8	15.1	20.4	15.4	20.0	15.8	19.4	16.6	18.5
45	Sleeve Inseam Length	15.9	22.6	16.8	21.4	17.2	21.0	17.4	20.7	17.8	20.3	18.3	19.7
46	Sleeve Length	29.3	39.0	30.7	37.4	31.2	36.9	31.6	36.5	32.1	35.9	32.9	35.0
HEAD AND FACE MEASUREMENTS													
47	Head Circumference	20.12	24.21	20.72	23.57	20.91	23.31	21.10	23.10	21.32	22.87	21.69	22.50
48	Head Length	6.65	8.70	7.01	8.31	7.10	8.22	7.19	8.13	7.28	8.02	7.45	7.85
49	Occiput-Nasal Root	6.54	8.54	6.84	8.21	6.95	8.09	7.04	7.98	7.15	7.87	7.32	7.70
50	Occiput-External Cantinus	5.59	7.87	5.98	7.70	6.10	7.59	6.21	7.47	6.33	7.33	6.55	7.09
51	Occiput-Triglion	2.64	5.39	3.21	5.13	3.30	5.06	3.39	4.95	3.51	4.78	3.75	4.45
52	Occiput-Pronasale	7.60	9.80	7.97	9.44	8.08	9.33	8.18	9.23	8.30	9.12	8.50	8.93
53	Head Breadth	5.12	6.85	5.50	6.55	5.58	6.47	5.65	6.39	5.73	6.30	5.86	6.16
54	Bitrignon Breadth	4.45	6.06	4.79	5.82	4.88	5.73	4.95	5.66	5.03	5.58	5.15	5.44
55	Head Height	4.29	6.10	4.66	5.92	4.75	5.81	4.83	5.71	4.93	5.61	5.09	5.45
56	Face Length	3.86	5.63	4.13	5.31	4.22	5.23	4.31	5.15	4.41	5.06	4.56	4.90
57	Face Breadth	4.80	6.26	5.00	6.02	5.08	5.93	5.15	5.85	5.23	5.77	5.36	5.64
58	Interpupillary Breadth	1.89	2.87	2.05	2.75	2.10	2.69	2.14	2.65	2.20	2.59	2.29	2.50

Table 8. U. S. MARINE CORPS DESIGN LIMITS (continued)

No.	Measurements	Values in Inches											
		100 percent	98 percent	95 percent	90 percent	80 percent	50 percent						
HAND MEASUREMENTS													
59	Hand Length	5.98	8.74	6.62	8.40	6.75	8.24	6.88	8.09	7.01	7.93	7.21	7.69
60	Palm Length	3.27	4.92	3.60	4.75	3.70	4.64	3.78	4.55	3.86	4.45	3.99	4.30
61	Hand Breadth	3.03	4.29	3.13	3.91	3.17	3.84	3.21	3.78	3.27	3.72	3.37	3.60
62	Hand Circumference	7.13	10.08	7.59	9.58	7.71	9.41	7.83	9.26	7.98	9.09	8.23	8.82
63	Thumb Crotch Length	1.22	2.72	1.50	2.50	1.56	2.40	1.61	2.32	1.69	2.23	1.82	2.10
FOOT MEASUREMENTS													
64	Foot Length	8.86	12.32	9.40	11.80	9.56	11.57	9.70	11.38	9.87	11.17	10.17	10.84
65	Instep Length	6.14	9.17	6.73	8.76	6.89	8.57	7.03	8.41	7.18	8.24	7.43	7.98
66	Ball of Foot Breadth	3.23	4.65	3.38	4.38	3.46	4.28	3.53	4.20	3.60	4.12	3.72	3.99
67	Heel Breadth	2.05	3.39	2.32	3.15	2.37	3.06	2.42	2.99	2.48	2.91	2.57	2.79
68	Ball of Foot Circumference	8.07	11.57	8.73	11.15	8.89	10.92	9.04	10.73	9.23	10.54	9.55	10.23
69	Instep Circumference	8.35	12.24	9.04	11.65	9.27	11.49	9.46	11.32	9.66	11.12	9.98	10.75
70	Heel-Ankle Circumference	11.34	15.75	12.06	15.00	12.25	14.75	12.43	14.52	12.64	14.27	12.99	13.85
Age (years)		17.0	43.0	17.8	34.3	18.1	29.7	18.2	25.8	18.5	23.6	19.2	21.6
		Mean Age - 20.88 years							Number of men - 2008				

8. ANALYSES AND DISCUSSION OF THE ANTHROPOMETRIC DATA

a. Standards for Height and Weight

Physical standards for height and weight of the U. S. Marine Corps may be found in Marine Corps Order 6100.3G, dated 23 September 1975. The following standards are specified for men, regardless of age:

Height (inches)	Weight (pounds)	
	minimum	maximum
78	153	235
77	151	230
76	147	225
75	143	219
74	139	214
73	135	209
72	131	203
71	127	197
70	123	192
69	119	186
68	115	181
67	111	175
66	107	170
65	106	165
64	105	160

Comparable physical standards for height in the U. S. Army range from a minimum of 60 inches up to a maximum of 80 inches. Minimum acceptable weights for the Army, regardless of age, are the same as those for the Marine Corps. Maximum acceptable weights for the Army, however, are graded by age groups, and considerably exceed those for the Marine Corps.

With reference to the anthropometric data for height and weight, mean height for the present series of Marines was 68.72 inches, and the range of height was from a minimum of 61.7 inches up to a maximum of 77.5 inches. Mean weight was 160.16 pounds, and the range of weight was from a minimum of 109.5 pounds up to a maximum of 247.5 pounds. There were 40 men (2 percent) whose height was below the minimum standard of 64 inches, but no men exceeded the maximum standard of 78 inches in height. There were no men who were below the minimum standard weight for their heights, but 171 men (8.5 percent) were above the maximum standard weight for their heights and could be considered to be overweight by Marine Corps standards.

b. Estimated and Measured Weight and Stature

Occasionally a comment is made to the effect that accurate measurements of height and weight really are not necessary and that since most men know their height and weight, these may be ascertained merely by asking the individual. During a physical or medical examination, a physician frequently will only ask the subject for his height and weight. The Marine Corps anthropometric survey afforded an opportunity to compare weight and height as estimated by Marines with actual measurements of their weight and height.

As a part of the background information obtained during the survey, each man was asked to give his weight (in pounds) and his height (in inches). Following these estimates by the individual, each man was weighed and his stature was measured.

The detailed data on estimated weight and stature for the total Marine Corps series are shown in Tables 9 and 10, respectively. The format for these tables is similar to that for the data on measured weight and stature given in Section 6 (pages 62 -- 65). Statistical values for estimated and measured weight and stature for the total Marine Corps series, as well as for the Camp Lejeune and Camp Pendleton subseries, are shown in Table 11. The corresponding percentile values for estimated and measured weight and stature are given in Table 12.

In all cases, the values for both estimated weight and stature are consistently higher than the values for measured weight and stature. In the total Marine Corps series, mean estimated weight was 3.72 pounds higher than mean measured weight. In the series from Camp Lejeune, the difference between mean estimated weight and mean measured weight was 3.66 pounds, while in the Camp Pendleton series, this difference was 3.77 pounds. By comparison, the U. S. Army survey of 1966 showed a mean estimated weight 2.28 pounds higher than mean measured weight.

In the total Marine Corps series, mean estimated stature was 1.44 inches higher than mean measured stature. In the Camp Lejeune series, mean estimated stature was 1.47 inches higher than mean measured stature, while this difference was 1.39 inches in the Camp Pendleton series. In the U. S. Army survey of 1966, mean estimated stature was 1.10 inches higher than mean measured stature.

The percentile values for estimated weight and stature, as compared with the percentile values for measured weight and stature (Table 12), show the same consistently higher values for the estimated measurements.

It may be suggested that differences between estimated and measured weight and stature may be greater in small, short men and in heavy, tall men. This may be attributable to the supposition that both small, short men and heavy, tall men are somewhat more sensitive about their general body size. Perhaps small men may tend to overestimate or exaggerate their size, while large men may tend to underestimate or minimize their body size. The anthropometric data in their present form do not warrant firm conclusions

Table 9. ESTIMATED WEIGHT FOR TOTAL MARINE CORPS SERIES

--INTERVALS--			--FREQUENCIES--		
POUNDS	KILOGRAMS	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
243.50- 246.49	110.45-111.80	2	2008	0.10	100.00
240.50- 243.49	109.09-110.44	0	2006	0.00	99.90
237.50- 240.49	107.73-109.08	0	2006	0.00	99.90
234.50- 237.49	106.37-107.72	1	2006	0.05	99.90
231.50- 234.49	105.01-106.36	0	2005	0.00	99.85
228.50- 231.49	103.65-105.00	3	2005	0.15	99.85
225.50- 228.49	102.28-103.64	1	2002	0.05	99.70
222.50- 225.49	100.92-102.27	5	2001	0.25	99.65
219.50- 222.49	99.56-100.91	7	1996	0.35	99.40
216.50- 219.49	98.20- 99.55	1	1989	0.05	99.05
213.50- 216.49	96.84- 98.19	6	1988	0.30	99.00
210.50- 213.49	95.48- 96.83	0	1982	0.00	98.71
207.50- 210.49	94.12- 95.47	19	1982	0.95	98.71
204.50- 207.49	92.76- 94.11	15	1963	0.75	97.76
201.50- 204.49	91.40- 92.75	9	1948	0.45	97.01
198.50- 201.49	90.04- 91.39	31	1939	1.54	96.56
195.50- 198.49	88.68- 90.03	11	1908	0.55	95.02
192.50- 195.49	87.32- 88.67	43	1897	2.14	94.47
189.50- 192.49	85.96- 87.31	61	1854	3.04	92.33
186.50- 189.49	84.59- 85.95	17	1793	0.85	89.29
183.50- 186.49	83.23- 84.58	116	1776	5.78	88.45
180.50- 183.49	81.87- 83.22	15	1660	0.75	82.67
177.50- 180.49	80.51- 81.86	98	1645	4.88	81.92
174.50- 177.49	79.15- 80.50	121	1547	6.03	77.04
171.50- 174.49	77.79- 79.14	30	1426	1.49	71.02
168.50- 171.49	76.43- 77.78	158	1396	7.87	69.52
165.50- 168.49	75.07- 76.42	32	1238	1.59	61.65
162.50- 165.49	73.71- 75.06	196	1206	9.76	60.06
159.50- 162.49	72.35- 73.70	198	1010	9.86	50.30
156.50- 159.49	70.99- 72.34	41	812	2.04	40.44
153.50- 156.49	69.63- 70.98	150	771	7.47	38.40
150.50- 153.49	68.27- 69.62	24	621	1.20	30.93
147.50- 150.49	66.90- 68.26	182	597	9.06	29.73
144.50- 147.49	65.54- 66.89	141	415	7.02	20.67
141.50- 144.49	64.18- 65.53	29	274	1.44	13.65
138.50- 141.49	62.82- 64.17	105	245	5.23	12.20
135.50- 138.49	61.46- 62.81	14	140	0.70	6.97
132.50- 135.49	60.10- 61.45	59	126	2.94	6.27
129.50- 132.49	58.74- 60.09	44	67	2.19	3.34
126.50- 129.49	57.38- 58.73	2	23	0.10	1.15
123.50- 126.49	56.02- 57.37	11	21	0.55	1.05
120.50- 123.49	54.66- 56.01	2	10	0.10	0.50
117.50- 120.49	53.30- 54.65	7	8	0.35	0.40
114.50- 117.49	51.94- 53.29	0	1	0.00	0.05
111.50- 114.49	50.58- 51.93	1	1	0.05	0.05

Table 9. ESTIMATED WEIGHT FOR TOTAL MARINE CORPS SERIES (continued)

PERCENTILES

POUNDS		KILOGRAMS
216.05	99 TH	98.00
208.92	98 TH	94.76
204.47	97 TH	92.75
198.56	95 TH	90.06
189.75	90 TH	86.07
184.02	85 TH	83.47
179.64	80 TH	81.48
175.95	75 TH	79.81
172.73	70 TH	78.35
169.82	65 TH	77.03
167.13	60 TH	75.81
164.58	55 TH	74.65
162.12	50 TH	73.53
159.71	45 TH	72.44
157.33	40 TH	71.36
154.94	35 TH	70.28
152.48	30 TH	69.16
149.90	25 TH	67.99
147.11	20 TH	66.73
144.00	15 TH	65.32
140.27	10 TH	63.62
135.11	5 TH	61.28
132.00	3 RD	59.87
129.83	2 ND	58.89
126.59	1 ST	57.42

THE SUMMARY STATISTICS

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POUNDS		KILOGRAMS
163.88	MEAN	74.33
0.43	SE(M)	0.20
19.33	ST DEV	8.77
0.30	SE(SD)	0.14

....

SYMMETRY--BETA I = 0.51
 KURTOSIS--BETA II = 3.35
 COEFFICIENT OF VARIATION = 11.79

....

SAMPLE SIZE = 2008

Table 10. ESTIMATED STATURE FOR TOTAL MARINE CORPS SERIES

--INTERVALS--			--FREQUENCIES--			
INCHES		CENTIMETERS	ACTUAL FREQ	CUMULA TIVE-F	PERCEN T-FREQ	CUMUL- PCT-FQ
77.50-	78.49	196.85-199.38	2	2008	0.10	100.00
76.50-	77.49	194.31-196.84	6	2006	0.30	99.90
75.50-	76.49	191.77-194.30	26	2000	1.29	99.60
74.50-	75.49	189.23-191.76	55	1974	2.74	98.31
73.50-	74.49	186.69-189.22	109	1919	5.43	95.57
72.50-	73.49	184.15-186.68	147	1810	7.32	90.14
71.50-	72.49	181.61-184.14	302	1663	15.04	82.82
70.50-	71.49	179.07-181.60	290	1361	14.44	67.78
69.50-	70.49	176.53-179.06	277	1071	13.79	53.34
68.50-	69.49	173.99-176.52	226	794	11.25	39.54
67.50-	68.49	171.45-173.98	239	568	11.90	28.29
66.50-	67.49	168.91-171.44	170	329	8.47	16.38
65.50-	66.49	166.37-168.90	94	159	4.68	7.92
64.50-	65.49	163.83-166.36	47	65	2.34	3.24
63.50-	64.49	161.29-163.82	13	18	0.65	0.90
62.50-	63.49	158.75-161.28	2	5	0.10	0.25
61.50-	62.49	156.21-158.74	1	3	0.05	0.15
60.50-	61.49	153.67-156.20	0	2	0.00	0.10
59.50-	60.49	151.13-153.66	2	2	0.10	0.10

Table 10. ESTIMATED STATURE FOR TOTAL MARINE CORPS SERIES (continued)

PERCENTILES		
INCHES	CENTIMETERS	
76.06	99 TH	193.19
75.38	98 TH	191.46
74.95	97 TH	190.39
74.39	95 TH	188.94
73.51	90 TH	186.71
72.90	85 TH	185.18
72.42	80 TH	183.94
71.99	75 TH	182.85
71.60	70 TH	181.87
71.24	65 TH	180.94
70.88	60 TH	180.05
70.54	55 TH	179.18
70.20	50 TH	178.30
69.85	45 TH	177.43
69.50	40 TH	176.53
69.14	35 TH	175.60
68.75	30 TH	174.62
68.33	25 TH	173.57
67.87	20 TH	172.39
67.35	15 TH	171.06
66.70	10 TH	169.43
65.83	5 TH	167.20
65.32	3 RD	165.92
65.00	2 ND	165.09
64.58	1 ST	164.03

THE SUMMARY STATISTICS

....

INCHES	CENTIMETERS	
70.16	MEAN	178.20
0.06	SE(M)	0.15
2.59	ST DEV	6.58
0.04	SE(SD)	0.10

....

SYMMETRY--BETA I = -0.05
 KURTOSIS--BETA II = 2.79
 COEFFICIENT OF VARIATION = 3.69

....

SAMPLE SIZE = 2008

Table 11. STATISTICAL VALUES FOR WEIGHT AND STATURE

	N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range	
							Min.	Max.
Total Series:								
Estimated Weight (pounds)	2008	163.88	0.43	19.33	0.30	11.79	111.5	246.5
Measured Weight (pounds)	2006	160.16	0.44	19.67	0.31	12.28	109.5	247.5
Estimated Stature (inches)	2008	70.16	0.06	2.59	0.04	3.69	59.5	78.5
Measured Stature (inches)	2008	68.72	0.06	2.48	0.04	3.61	61.7	77.4
Camp Lejeune:								
Estimated Weight (pounds)	1003	163.61	0.59	18.83	0.42	11.51	117.5	237.5
Measured Weight (pounds)	1002	159.95	0.61	19.33	0.43	12.08	111.5	235.5
Estimated Stature (inches)	1003	70.19	0.08	2.58	0.06	3.67	59.5	78.5
Measured Stature (inches)	1003	68.72	0.08	2.46	0.06	3.59	61.7	77.4
Camp Pendleton:								
Estimated Weight (pounds)	1005	164.15	0.62	19.81	0.44	12.07	110.0	245.0
Measured Weight (pounds)	1004	160.38	0.63	20.01	0.45	12.47	107.5	247.5
Estimated Stature (inches)	1005	70.12	0.08	2.60	0.06	3.71	59.5	78.5
Measured Stature (inches)	1005	68.73	0.08	2.50	0.06	3.64	61.7	76.3

Table 12. PERCENTILE VALUES FOR WEIGHT AND STATURE

	<u>1st</u>	<u>2nd</u>	<u>5th</u>	<u>10th</u>	<u>25th</u>	Median		<u>50th</u>	<u>75th</u>	<u>90th</u>	<u>95th</u>	<u>98th</u>	<u>99th</u>	Range (1st-99th)
Total Series:														
Estimated Weight (pounds)	127.0	130.0	135.0	140.0	150.0	162.0	176.0	190.0	199.0	209.0	216.0	212.9	89.0	
Measured Weight (pounds)	122.5	125.7	131.0	136.2	146.0	158.4	172.3	186.2	195.1	205.6	212.9	212.9	91.0	
Estimated Stature (inches)	64.6	65.0	65.8	66.7	68.3	70.2	72.0	73.5	74.4	75.4	76.1	74.1	11.5	
Measured Stature (inches)	63.5	64.0	64.8	65.6	67.0	68.7	70.4	72.0	73.0	74.1	74.8	74.1	11.3	
Camp Lejeune:														
Estimated Weight (pounds)	127.0	130.0	135.0	141.0	150.0	162.0	175.0	188.0	197.0	208.0	217.0	214.0	90.0	
Measured Weight (pounds)	122.0	126.0	132.0	137.0	147.0	158.0	171.0	185.0	194.0	206.0	214.0	214.0	92.0	
Estimated Stature (inches)	64.6	65.0	65.8	66.7	68.4	70.3	72.0	73.5	74.3	75.4	76.2	74.1	11.6	
Measured Stature (inches)	63.6	64.0	64.8	65.6	67.0	68.7	70.4	71.9	72.9	74.1	75.0	74.1	11.4	
Camp Pendleton:														
Estimated Weight (pounds)	128.0	130.0	134.0	140.0	150.0	163.0	177.0	191.0	199.0	210.0	217.0	217.0	89.0	
Measured Weight (pounds)	123.0	126.0	131.0	136.0	146.0	159.0	173.0	188.0	196.0	205.0	211.0	211.0	88.0	
Estimated Stature (inches)	64.5	65.0	65.8	66.7	68.2	70.1	72.0	73.6	74.4	75.4	76.2	74.1	11.5	
Measured Stature (inches)	63.4	63.9	64.8	65.5	67.0	68.7	70.5	72.1	73.1	74.1	74.7	74.1	11.3	

on this subject; this should be investigated using the present data in the form of individually paired comparisons of estimated and measured weight and stature.

c. Comparisons of U. S. Marine Corps Subseries

The total of 2008 Marine Corps men measured in this survey consisted of two subseries: 1003 men were measured at Camp Lejeune, North Carolina and 1005 men were measured at Camp Pendleton, California. As might be expected, the two groups were very similar in body size, and also in age.

The Camp Lejeune subseries was slightly older, with a mean age of 21.01 years, as contrasted with a mean age of 20.76 years for the Camp Pendleton subseries. Mean weights for the two groups were 159.95 pounds for the Camp Lejeune subseries and 160.38 pounds for the Camp Pendleton subseries. Mean statures for the two groups were virtually identical: 68.72 and 68.73 inches, respectively. Mean chest circumferences for the two groups also were practically identical: 37.08 and 37.14 inches, respectively. The anthropometric data indicated, therefore, that for all practical purposes the two subseries of Marines measured at Camp Lejeune and Camp Pendleton were identical in body size.

d. U. S. Marine Corps Data of 1949

An anthropometric survey of U. S. Marine Corps men was carried out in 1949 by William J. Beer, a Marine Corps officer. In this survey, 1000 men were measured at Camp Lejeune, North Carolina, and 1000 men were measured at Camp Pendleton, California. The purpose of the survey was to obtain and analyze body size information on the Marine Corps population for application and utilization in the design and sizing of Marine Corps clothing and equipment. Although the anthropometric data from this survey were never published in an official report, they were used extensively in the development and sizing of Marine Corps clothing and individual equipment. This work was carried on for some years at the Marine Corps Depot of Supplies, Philadelphia, Pennsylvania, by Beer and by Emil M. Misura, also a Marine Corps officer.

It may be of interest here to compare the two series of Marines measured in 1949 and in 1966. Anthropometric data, in the form of mean values for 15 body measurements taken in both surveys, are shown in Table 13. Mean age for the 1966 series was about three-quarters of a year higher than that of the 1949 series. The 1966 series was four pounds heavier and about 0.4 inches taller than the 1949 series. In all measurements but one (head circumference), mean values were greater for the 1966 series of Marines than for the 1949 series. In particular, the circumferences or body girths were markedly higher for the 1966 series — a reflection of the increase of four pounds in weight.

e. U. S. Marine Corps Data of 1973

A significant study of the body size and body composition of U. S. Marine Corps men was carried out by Howell F. Wright (Marine Corps Development and Education

Table 13. MEAN VALUES FOR U. S. MARINE CORPS - 1949 and 1966

	Centimeters			Inches		
	<u>1949</u>	<u>1966</u>	<u>Increase</u>	<u>1949</u>	<u>1966</u>	<u>Increase</u>
1 Weight	70.83 kg	72.65 kg	1.82 kg	156.16 lb	160.16 lb	4.00 lb
2 Stature	173.56	174.56	1.00	68.33	68.72	0.39
3 Waist Height	104.67	106.03	1.36	41.21	41.74	0.53
4 Crotch Height	82.73	83.95	1.22	32.57	33.05	0.48
5 Neck Circumference	34.82	37.71	2.89	13.71	14.84	1.13
6 Shoulder Circumference	109.47	113.61	4.14	43.10	44.73	1.63
7 Chest Circumference	88.26	94.26	6.00	34.75	37.11	2.36
8 Waist Circumference	74.68	79.29	4.61	29.40	31.22	1.82
9 Hip Circumference	90.68	94.85	4.17	35.70	37.34	1.64
10 Sleeve Length	82.55	86.27	3.72	32.50	33.96	1.46
11 Head Circumference	56.39	56.13	-0.26	22.20	22.10	-0.10
12 Hand Length	18.49	18.94	0.45	7.28	7.46	0.18
13 Hand Breadth	8.53	8.86	0.33	3.36	3.49	0.13
14 Foot Length	26.47	26.70	0.23	10.42	10.51	0.09
15 Ball of Foot Circumference	23.36	25.12	1.76	9.20	9.89	.069
Age (years)	20.11	20.88	0.77			
Number of men	2000	2008				

Command, Quantico, Va.) and Jack H. Wilmore (Department of Physical Education, University of California, Davis, Calif.); their report was published in **Aerospace Medicine** in March, 1974.²²

The study was conducted at Quantico, Virginia, utilizing subjects drawn from the various Quantico school and base populations. A random sample of 297 Marines between 18 and 53 years of age was used to determine a simple, but accurate, clinical and field test for estimating body composition from several anthropometric measurements. A total of 9 skinfold, 15 circumference, and 9 diameter measurements, in addition to age, height and weight, were assessed at least twice, and were then used in a stepwise, linear, multiple regression analysis to determine the most accurate equations to estimate relative body fat and lean body weight. The latter were determined by hydrostatic weighing. Relative body fat could be predicted from five anthropometric measurements with an $R = 0.87$, and a standard error of estimate of 3.08 percentage units. Lean body weight could be predicted from three anthropometric measurements with an $R = 0.90$ and a standard error of estimate of 2.16 kg. Additional analyses of the data were conducted with the subjects divided into three categories. Age was found to have little or no relationship to any one of the body composition factors.

On the basis of this study, it was concluded that the traditional method of estimating one's best weight through standard height-weight tables is a crude and unacceptable way to ascertain the individual's actual body composition. A distinction between one's lean body weight, fat weight, and total body weight, is what is actually desired. This can be accomplished through a rather simple assessment of several anthropometric measurements, which are then placed in a regression equation to estimate the approximate body composition parameters.

This study demonstrated that, by taking two measurements — weight and abdominal circumference — an accurate ($R = 0.88$) estimation of one's body composition can be performed. Regression equations involving three to five anthropometric measurements are given for use in a clinical situation where instrumentation and time do not present problems as in field situations. R coefficients of 0.86 to 0.90 were found to exist between various anthropometric measurements and the components of body composition. In addition, this study found these predictions to be independent of age.

While this study involved less than 300 Marines and was carried out several years after the Marine Corps anthropometric survey of 1966, it is of interest to compare the anthropometric data from the two sources. Statistical values for the anthropometric measurements, as well as for the skinfold thickness measurements and the body composition measures of this study are shown in Table 14 (in centimeters) and in Table 15 (in inches); percentile values for these data were not reported.

²²Wright, Howell F., and Jack H. Wilmore. Estimation of relative body fat and lean body weight in a United States Marine Corps population. **Aerospace Medicine**, Vol. 45, No. 3, 301-306, March, 1974.

Table 14. STATISTICAL VALUES FOR U. S. MARINE CORPS - 1973

No.	Measurements	N	Values in Centimeters						Stature ratio
			Mean	SE(M)	S.D.	SE(SD)	V(%)	Range Min. Max.	
1	Weight (kilograms)	297	77.92	0.57	9.84	0.40	12.63	55.1 113.2	58.1
2	Stature	297	177.13	0.37	6.33	0.26	3.57	156.6 190.2	33.6 1.000
BREADTH MEASUREMENTS									
3	Biacromial Breadth	297	39.50	0.12	2.05	0.08	5.19		.223
4	Shoulder (Bideltoid) Breadth	297	47.30	0.15	2.52	0.10	5.33		.267
5	Chest Breadth	297	28.50	0.10	1.68	0.07	5.89		.161
6	Bi-iliac Breadth	297	28.20	0.12	2.06	0.08	7.30		.159
7	Bitrochanteric Breadth	297	32.80	0.10	1.68	0.07	5.12		.185
JOINT BREADTHS, BONE									
8	Elbow Breadth	297	6.90	0.02	0.36	0.01	5.22		.039
9	Wrist Breadth	297	5.60	0.02	0.31	0.01	5.54		.032
10	Knee Breadth	297	9.70	0.03	0.48	0.02	4.95		.055
11	Bimalleolar Breadth	297	7.20	0.02	0.40	0.02	5.56		.041
CIRCUMFERENCES									
12	Neck Circumference	297	37.60	0.11	1.81	0.07	4.81		.212
13	Shoulder Circumference	297	115.90	0.33	5.65	0.23	4.87		.654
14	Chest Circumference	297	97.70	0.41	7.04	0.29	7.21		.552
15	Abdominal Circumference 1	297	83.70	0.39	6.75	0.28	8.06		.473
16	Abdominal Circumference 2	297	85.10	0.46	7.91	0.32	9.29		.480
17	Hip Circumference	297	98.30	0.32	5.60	0.23	5.70		.555

Table 14. STATISTICAL VALUES FOR U. S. MARINE CORPS - 1973 (continued)

No.	Measurements	Values in Centimeters							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
LIMB CIRCUMFERENCES											
18	Deltoid Circumference	297	36.30	0.14	2.41	0.10	6.64				.205
19	Biceps Circum., Relaxed	297	30.20	0.15	2.57	0.11	8.51				.170
20	Biceps Circum., Flexed	297	33.50	0.14	2.45	0.10	7.31				.189
21	Forearm Circum., Relaxed	297	28.00	0.09	1.56	0.06	5.57				.158
22	Wrist Circumference	297	17.00	0.04	0.71	0.03	4.18				.096
23	Thigh Circumference	297	57.50	0.26	4.42	0.18	7.69				.325
24	Knee Circumference	297	38.00	0.11	1.97	0.08	5.18				.215
25	Calf Circumference	297	37.70	0.14	2.44	0.10	6.47				.213
26	Ankle Circumference	297	22.30	0.08	1.34	0.05	6.01				.126
SKINFOLD MEASUREMENTS											
27	Subscapular Skinfold	297	1.71	0.06	0.95	0.04	55.56				
28	Triceps Skinfold	297	1.16	0.03	0.54	0.02	46.55				
29	Biceps Skinfold	297	0.54	0.01	0.24	0.01	44.44				
30	Chest Skinfold	297	1.56	0.05	0.82	0.03	52.56				
31	Mid-axillary Skinfold	297	1.76	0.06	1.02	0.04	57.95				
32	Suprailiac Skinfold	297	2.95	0.11	1.92	0.08	65.08				
33	Abdominal Skinfold	297	2.37	0.08	1.37	0.06	57.81				
34	Thigh Skinfold	297	1.81	0.06	1.01	0.04	55.80				
35	Calf Skinfold	297	1.35	0.04	0.71	0.03	52.59				
36	Body Density (g/cc)	297	1.0613	0.00	0.0141	0.00	1.33	1.0203	1.0987	0.0784	
37	Relative Body Fat (percent)	297	16.50	0.36	6.19	0.25	37.52	0.53	35.15	34.62	
38	Total Body Fat (kilograms)	297	13.13	0.34	5.87	0.24	44.71	1.84	32.56	30.72	
39	Lean Body Weight (kilograms)	297	65.00	0.43	7.34	0.30	11.29	50.14	92.00	41.86	
40	Residual Volume (liters)	297	1.6110	0.03	0.4400	0.02	27.31	0.7400	3.3040	2.5640	
	Age (years)	297	28.73	0.48	8.21	0.34	28.58	18.0	53.0	35.0	

Table 15. STATISTICAL VALUES FOR U. S. MARINE CORPS - 1973

No.	Measurements	N	Mean	Values in Inches					Range		Stature ratio
				<u>SE(M)</u>	<u>S.D.</u>	<u>SE(SD)</u>	<u>V(%)</u>	<u>Min.</u>	<u>Max.</u>	<u>Total</u>	
1	Weight (pounds)	297	171.81	1.26	21.70	0.89	12.63	121.6	249.6	128.0	
2	Stature	297	69.74	0.14	2.49	0.10	3.57	61.7	74.9	13.2	1.000
BREADTH MEASUREMENTS											
3	Biacromial Breadth	297	15.55	0.05	0.81	0.03	5.21				.223
4	Shoulder (Bideltoid) Breadth	297	18.62	0.06	0.99	0.04	5.32				.267
5	Chest Breadth	297	11.22	0.04	0.66	0.03	5.88				.161
6	Pi-iliac Breadth	297	11.10	0.05	0.81	0.03	7.30				.159
7	Bitrochanteric Breadth	297	12.91	0.04	0.66	0.03	5.11				.185
JOINT BREADTHS, BONE											
8	Elbow Breadth	297	2.72	0.01	0.14	0.01	5.15				.039
9	Wrist Breadth	297	2.20	0.01	0.12	0.00	5.45				.032
10	Knee Breadth	297	3.82	0.01	0.19	0.01	4.97				.055
11	Bimalleolar Breadth	297	2.83	0.01	0.16	0.01	5.65				.041
CIRCUMFERENCES											
12	Neck Circumference	297	14.80	0.04	0.71	0.03	4.80				.212
13	Shoulder Circumference	297	45.63	0.13	2.22	0.09	4.87				.654
14	Chest Circumference	297	38.46	0.16	2.77	0.11	7.20				.551
15	Abdominal Circumference 1	297	32.95	0.15	2.66	0.11	8.07				.472
16	Abdominal Circumference 2	297	33.50	0.18	3.11	0.13	9.28				.480
17	Hip Circumference	297	38.70	0.13	2.20	0.09	5.68				.552

Table 15. STATISTICAL VALUES FOR U. S. MARINE CORPS - 1973 (continued)

No.	Measurements	N	Values in Inches						Range		Stature ratio
			Mean	SE(M)	S.D.	SE(SD)	V(%)	Max.			
								Min.	Total		
LIMB CIRCUMFERENCES											
18	Beltoid Circumference	297	14.29	0.06	0.95	0.04	6.65			.205	
19	Biceps Circum., Relaxed	297	11.89	0.06	1.01	0.04	8.49			.170	
20	Biceps Circum., Flexed	297	13.19	0.06	0.96	0.04	7.28			.189	
21	Forearm Circum., Relaxed	297	11.02	0.04	0.61	0.03	5.54			.158	
22	Wrist Circumference	297	6.69	0.02	0.28	0.01	4.19			.096	
23	Thigh Circumference	297	22.64	0.10	1.74	0.07	7.69			.325	
24	Knee Circumference	297	14.96	0.05	0.78	0.03	5.21			.215	
25	Calf Circumference	297	14.84	0.06	0.96	0.04	6.47			.213	
26	Ankle Circumference	297	8.78	0.03	0.53	0.02	6.04			.126	
SKINFOLD MEASUREMENTS											
27	Subscapular Skinfold	297	0.67	0.02	0.37	0.02	55.22				
28	Triceps Skinfold	297	0.46	0.01	0.21	0.01	45.65				
29	Biceps Skinfold	297	0.21	0.01	0.09	0.00	42.86				
30	Chest Skinfold	297	0.61	0.02	0.32	0.01	52.46				
31	Mid-axillary Skinfold	297	0.69	0.02	0.40	0.02	57.97				
32	Suprailiac Skinfold	297	1.16	0.04	0.76	0.03	65.52				
33	Abdominal Skinfold	297	0.93	0.03	0.54	0.02	58.06				
34	Thigh Skinfold	297	0.71	0.02	0.40	0.02	56.33				
35	Calf Skinfold	297	0.53	0.02	0.28	0.01	52.83				
36	Body Density (g/cc)	297	1.0613	0.00	0.0141	0.00	1.33	1.0203	1.0987	0.0784	
37	Relative Body Fat (percent)	297	16.50	0.36	6.19	0.25	37.52	0.53	35.15	34.62	
38	Total Body Fat (pounds)	297	28.95	0.75	12.94	0.53	44.70	4.06	71.79	67.73	
39	Lean Body Weight (pounds)	297	143.32	0.94	16.18	0.66	11.29	110.56	202.86	92.30	
40	Residual Volume (liters)	297	1.6110	0.03	0.4400	0.02	27.31	0.7400	3.3040	2.5640	
Age (years)											
		297	28.73	0.48	8.21	0.34	28.58	18.0	53.0	35.0	

The Marines in this study were considerably older, with a mean age of 28.73 years, as compared to a mean age of 20.88 years for the 1966 Marine Corps series. Mean weight for the men in this study was 171.81 pounds, while the 1966 series showed a mean weight of 160.16 pounds, a difference of 11.65 pounds. The men of this study were over one inch taller, with a mean stature of 69.74 inches, while the 1966 series had a mean stature of 68.72 inches. Chest and waist circumferences also were larger for the men of this study. Mean chest circumference for the study series was 38.46 inches, compared with a mean chest circumference of 37.11 inches for the 1966 Marines, while mean waist circumference was 32.95 inches for the study series, and 31.22 inches for the 1966 series. The Quantico Marines utilized in this study of body composition thus were older, heavier, taller, and larger in body size than the Marines measured in the 1966 anthropometric survey.

f. Comparison of U. S. Army and U. S. Marine Corps Data

In a technical report of the results of the U. S. Army anthropometric survey of men in 1966 (see Reference 12, page 13), comparisons of data from all of the U. S. Armed Forces were made on the basis of seven selected body measurements: weight; stature; sitting height; shoulder breadth; hip breadth, sitting; chest circumference and waist circumference. The anthropometric data from the present Marine Corps survey were included in these comparative tables.

In the area of clothing and individual equipment, the U. S. Army and the U. S. Marine Corps have somewhat comparable requirements; in fact a great deal of U. S. Army combat clothing and equipment is utilized by the Marine Corps. In view of this area of mutual interest, a detailed comparison of the anthropometric data from the Army and from the Marine Corps is pertinent here.

Statistical values for the seventy body dimensions measured on both Army and Marine Corps personnel in 1966 are given in Table 16 (in centimeters) and in Table 17 (in inches). The statistical values are: the number of men (N), the mean, the standard error of the mean (SE(M)), the standard deviation (S.D.), the standard error of the standard deviation (SE(SD)), the coefficient of variation (V(%)), the range, and the stature ratio. The range is indicated by the minimum value (Min.), the maximum value (Max.), and the total range, or the difference between the minimum and maximum values. Percentile values for the Army and Marine Corps series are given in Table 18 (in centimeters) and in Table 19 (in inches). The percentiles consist of selected values from the 1st up to the 99th percentile, together with the range from the 1st to the 99th percentile.

The U. S. Army series of 1966 had a mean age of 22.17 years, while the U. S. Marine Corps series had a mean age of 20.88 years, giving a difference of 1.29 years. Despite this slight difference in age, both series essentially represent groups of young men. In mean weight, the Marines were 1.06 pounds heavier; mean weight for the Marines was 160.16 pounds, while the Army series had a mean weight of 159.10 pounds. The two series were virtually identical in mean stature: 68.71 inches for the Army and 68.72

inches for the Marines. Mean chest circumference for the Marines was 37.11 inches and mean chest circumference for the Army series was 36.92 inches, a difference of less than 0.2 inches.

As indicated in the tables of comparative data, the body measurements of Army and Marine Corps personnel were very closely similar, and in some instances, actually were identical. In general, the Marine Corps data showed lower standard deviations and a lesser range of variation between minimum and maximum values; this may be attributable to the difference in sample size between the two series. Percentile values for the two series also are closely similar, with the Marine Corps series showing a lesser range between 1st and 99th percentile values.

On the basis of the anthropometric data, it may be concluded that for all practical purposes, these samples of U. S. Army and U. S. Marine Corps men are virtually identical in body size and proportions.

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966

No.	<u>Measurements</u>	Values in Centimeters							Range		Stature ratio
		<u>N</u>	<u>Mean</u>	<u>SE(M)</u>	<u>S.D.</u>	<u>SE(SD)</u>	<u>V(%)</u>	<u>Min.</u>	<u>Max.</u>	<u>Total</u>	
1	Weight (kilograms)										
	U. S. Army	6677	72.23	0.13	10.60	0.09	14.68	45.4	127.0	81.6	
	U. S. Marine Corps	2006	72.65	0.20	8.92	0.14	12.28	49.9	111.6	61.7	
STANDING MEASUREMENTS											
2	Stature										
	U. S. Army	6682	174.52	0.08	6.61	0.06	3.79	151.9	199.1	47.2	1.000
	U. S. Marine Corps	2008	174.56	0.14	6.31	0.10	3.61	156.8	196.2	39.4	1.000
3	Cervicale Height										
	U. S. Army	6682	149.56	0.08	6.34	0.05	4.24	127.9	172.8	44.9	.857
	U. S. Marine Corps	2008	149.59	0.14	6.10	0.10	4.08	131.8	169.0	37.2	.857
4	Shoulder (Acromiale) Height										
	U. S. Army	6682	143.72	0.08	6.22	0.05	4.33	123.6	166.3	42.7	.824
	U. S. Marine Corps	2008	143.98	0.13	5.96	0.09	4.14	125.4	163.9	38.5	.825
5	Waist (Iliocristale) Height										
	U. S. Army	6682	106.33	0.07	5.37	0.05	5.05	86.4	125.3	38.9	.609
	U. S. Marine Corps	2008	106.03	0.11	5.14	0.08	4.84	90.3	122.9	32.6	.607
6	Crotch Height										
	U. S. Army	6682	83.94	0.06	4.67	0.04	5.57	64.9	101.5	36.6	.481
	U. S. Marine Corps	2008	83.95	0.10	4.62	0.07	5.51	67.6	98.6	31.0	.481

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

Values in Centimeters										
No.	Measurements	N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range		Stature ratio
								Min.	Max.	
STANDING MEASUREMENTS (continued)										
7	Kneecap (Patella) Height									
	U. S. Army	6682	52.86	0.04	3.25	0.03	6.14	43.2	63.9	20.7
	U. S. Marine Corps	2008	52.78	0.08	3.36	0.05	6.38	42.9	64.1	21.2
8	Calf Height									
	U. S. Army	6682	35.42	0.03	2.70	0.02	7.62	23.9	47.3	23.4
	U. S. Marine Corps	2008	36.04	0.06	2.69	0.04	7.47	28.1	44.2	16.1
9	Functional (Thumb-Tip) Reach									
	U. S. Army	6682	82.60	0.06	4.85	0.04	5.87	65.6	100.2	34.6
	U. S. Marine Corps	2008	80.33	0.11	4.79	0.08	5.97	66.5	96.4	29.9
SITTING MEASUREMENTS										
10	Vertical Reach, Sitting									
	U. S. Army	6682	138.23	0.07	5.80	0.05	4.20	116.8	160.4	43.6
	U. S. Marine Corps	2008	137.77	0.13	5.68	0.09	4.12	121.9	155.7	33.8
11	Sitting Height									
	U. S. Army	6682	90.69	0.04	3.66	0.03	4.04	77.5	102.9	25.4
	U. S. Marine Corps	2008	90.99	0.08	3.53	0.06	3.88	80.4	100.9	20.5
12	Eye Height, Sitting									
	U. S. Army	6682	78.72	0.04	3.57	0.03	4.53	65.9	92.1	26.2
	U. S. Marine Corps	2008	78.64	0.07	3.34	0.05	4.25	68.2	88.5	20.3

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Values in Centimeters						Range		Stature ratio
			Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
SITTING MEASUREMENTS (continued)											
13	Mid-Shoulder Height, Sitting U. S. Army U. S. Marine Corps	6682 2008	62.38 62.38	0.04 0.07	3.18 3.19	0.03 0.05	5.09 5.11	50.8 51.7	73.1 71.3	22.3 19.6	.357 .357
14	Shoulder-Elbow Length U. S. Army U. S. Marine Corps	6682 2008	36.87 37.12	0.02 0.04	1.86 1.84	0.02 0.03	5.05 4.96	29.7 31.8	43.6 43.2	13.9 11.4	.211 .213
15	Elbow-Fingertip Length U. S. Army U. S. Marine Corps	6682 2008	47.96 47.82	0.03 0.05	2.31 2.22	0.02 0.04	4.81 4.64	39.3 39.9	57.4 55.7	18.1 15.8	.275 .274
16	Knee Height, Sitting U. S. Army U. S. Marine Corps	6682 2008	54.06 54.23	0.03 0.06	2.73 2.63	0.02 0.04	5.05 4.84	44.3 45.8	64.5 63.7	20.2 17.9	.310 .311
17	Popliteal Height, Sitting U. S. Army U. S. Marine Corps	6682 2008	44.61 45.74	0.03 0.05	2.50 2.40	0.02 0.04	5.60 5.25	35.8 37.3	54.2 52.9	18.4 15.6	.256 .287
18	Buttock-Knee Length U. S. Army U. S. Marine Corps	6682 2008	59.47 59.51	0.03 0.06	2.85 2.72	0.02 0.04	4.80 4.57	50.1 51.7	70.9 68.2	20.8 16.5	.341 .341
19	Buttock-Popliteal Length U. S. Army U. S. Marine Corps	6682 2008	49.82 50.11	0.03 0.06	2.50 2.54	0.02 0.04	5.02 5.08	41.2 43.0	58.7 58.8	17.5 15.8	.285 .287

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Centimeters							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
BREADTH MEASUREMENTS											
20	Chest Depth										
	U. S. Army	6682	23.18	0.02	1.99	0.02	8.61	16.5	33.9	17.4	.133
	U. S. Marine Corps	2008	23.27	0.04	1.76	0.03	7.57	18.3	30.2	11.9	.133
21	Chest Breadth										
	U. S. Army	6682	30.57	0.03	2.15	0.02	7.02	24.5	41.5	17.0	.175
	U. S. Marine Corps	2008	30.74	0.04	1.88	0.03	6.13	25.6	38.2	12.6	.176
22	Hip Breadth, Standing										
	U. S. Army	6682	33.20	0.02	2.01	0.02	6.05	27.0	44.7	17.7	.190
	U. S. Marine Corps	2008	33.19	0.04	1.75	0.03	5.26	28.3	39.8	11.5	.190
23	Shoulder (Bideltoïd) Breadth										
	U. S. Army	6682	45.37	0.03	2.54	0.02	5.59	36.7	58.4	21.7	.260
	U. S. Marine Corps	2008	45.48	0.05	2.32	0.04	5.09	39.1	57.7	18.6	.261
24	Forearm-Forearm Breadth										
	U. S. Army	6682	45.98	0.05	4.22	0.04	9.17	33.5	66.0	32.5	.263
	U. S. Marine Corps	2008	45.66	0.08	3.65	0.06	7.98	36.3	65.0	28.7	.262
25	Hip Breadth, Sitting										
	U. S. Army	6682	34.16	0.03	2.38	0.02	6.97	26.6	50.0	23.4	.196
	U. S. Marine Corps	2008	34.16	0.04	2.02	0.03	5.90	28.8	43.1	14.3	.196

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Centimeters							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
CIRCUMFERENCES											
26	Neck Circumference	6681 2008	37.39 37.71	0.03 0.04	2.07 1.91	0.02 0.03	5.53 5.05	30.3 31.1	48.4 45.5	18.1 14.4	.214 .216
	U. S. Army										
	U. S. Marine Corps										
27	Shoulder Circumference	6682 2008	113.16 113.61	0.08 0.13	6.39 5.76	0.06 0.09	5.64 5.07	93.1 99.2	144.7 140.4	51.6 41.2	.648 .651
	U. S. Army										
	U. S. Marine Corps										
28	Chest Circumference	6682 2008	93.77 94.26	0.08 0.13	6.69 5.83	0.06 0.09	7.13 6.19	72.0 80.4	124.2 124.4	52.2 44.0	.537 .540
	U. S. Army										
	U. S. Marine Corps										
29	Waist Circumference	6682 2008	80.29 79.29	0.10 0.14	8.18 6.34	0.07 0.10	10.19 7.99	58.9 63.5	127.7 110.7	68.8 47.2	.460 .454
	U. S. Army										
	U. S. Marine Corps										
30	Hip (Buttock) Circumference	6682 2008	94.21 94.85	0.08 0.12	6.25 5.23	0.05 0.08	6.63 5.52	77.4 80.0	132.9 115.9	55.5 35.9	.540 .543
	U. S. Army										
	U. S. Marine Corps										
31	Upper Thigh Circumference	6682 2008	55.42 56.32	0.06 0.09	4.80 4.21	0.04 0.07	8.66 7.48	39.1 42.3	77.1 73.2	38.0 30.9	.318 .323
	U. S. Army										
	U. S. Marine Corps										
32	Lower Thigh Circumference	6682 2008	40.36 40.05	0.05 0.07	3.87 3.20	0.03 0.05	9.58 8.00	29.1 30.5	56.2 53.2	27.1 22.7	.231 .229
	U. S. Army										
	U. S. Marine Corps										

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Values in Centimeters						Range		Stature ratio
			Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
CIRCUMFERENCES (continued)											
33	Calf Circumference	6682	36.60	0.03	2.67	0.02	7.29	28.3	50.3	22.0	.210
	U. S. Army	2008	37.16	0.05	2.35	0.04	6.32	29.3	45.4	16.1	.213
	U. S. Marine Corps										
34	Ankle Circumference	6682	22.69	0.02	1.44	0.01	6.34	18.1	30.4	12.3	.130
	U. S. Army	2008	22.66	0.03	1.34	0.02	5.93	18.5	28.0	9.5	.130
	U. S. Marine Corps										
35	Vert. Trunk Circum., Standing	6682	164.11	0.10	8.49	0.07	5.17	135.5	198.6	63.1	.940
	U. S. Army	2008	164.90	0.17	7.41	0.12	4.49	144.0	193.7	49.7	.945
	U. S. Marine Corps										
36	Scye Circumference	6682	44.56	0.04	3.26	0.03	7.32	32.7	59.4	26.7	.255
	U. S. Army	2008	44.67	0.07	2.94	0.05	6.58	36.3	57.0	20.7	.256
	U. S. Marine Corps										
37	Biceps Circum., Relaxed	6682	29.44	0.03	2.74	0.02	9.29	21.0	44.2	23.2	.169
	U. S. Army	2008	29.69	0.05	2.37	0.04	7.98	22.8	39.7	16.9	.170
	U. S. Marine Corps										
38	Biceps Circum., Flexed	6682	32.27	0.03	2.75	0.02	8.52	22.9	45.2	22.3	.185
	U. S. Army	2008	32.42	0.05	2.42	0.04	7.45	24.4	42.5	18.1	.186
	U. S. Marine Corps										
39	Forearm Circum., Flexed	6682	29.43	0.03	2.15	0.02	7.31	22.7	41.1	18.4	.169
	U. S. Army	2008	29.41	0.04	1.89	0.03	6.41	23.1	37.0	13.9	.168
	U. S. Marine Corps										
40	Wrist Circumference	6682	17.06	0.01	0.88	0.01	5.13	13.7	21.6	7.9	.098
	U. S. Army	2008	17.01	0.02	0.81	0.01	4.74	14.7	19.6	4.9	.097
	U. S. Marine Corps										

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Centimeters									Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range		Total	
								Min.	Max.		
SURFACE MEASUREMENTS											
41	Shoulder Length										
	U. S. Army	6682	16.20	0.02	1.98	0.02	12.25	8.8	24.3	15.5	.093
	U. S. Marine Corps	2008	16.43	0.03	1.40	0.02	8.53	10.2	20.9	10.7	.094
42	Interscye Breadth										
	U. S. Army	6682	39.10	0.04	3.16	0.03	8.07	27.5	51.4	23.9	.224
	U. S. Marine Corps	2008	38.72	0.07	3.04	0.05	7.85	29.6	52.8	23.2	.222
43	Interscye, Maximum										
	U. S. Army	6682	52.64	0.05	3.70	0.03	7.03	40.5	67.1	26.6	.302
	U. S. Marine Corps	2008	51.81	0.08	3.40	0.05	6.56	40.0	64.9	24.9	.297
44	Waist Back Length										
	U. S. Army	6682	45.03	0.04	3.44	0.03	7.64	34.5	58.2	23.7	.258
	U. S. Marine Corps	2008	44.67	0.08	3.49	0.06	7.81	25.4	56.2	20.8	.256
45	Sleeve Inseam Length										
	U. S. Army	6682	48.59	0.03	2.68	0.02	5.51	39.7	59.7	20.0	.278
	U. S. Marine Corps	2008	48.31	0.06	2.51	0.04	5.20	40.5	57.5	17.0	.277
46	Sleeve Length										
	U. S. Army	6682	85.84	0.05	3.96	0.03	4.61	70.4	100.2	29.8	.492
	U. S. Marine Corps	2008	86.27	0.08	3.76	0.06	4.36	74.4	99.0	24.6	.494

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Centimeters							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
HEAD AND FACE MEASUREMENTS											
47	Head Circumference										
	U. S. Army	6682	56.11	0.02	1.61	0.01	2.86	51.0	63.7	12.7	.322
	U. S. Marine Corps	2008	56.13	0.03	1.54	0.02	2.74	51.1	61.5	10.4	.322
48	Head Length										
	U. S. Army	6682	19.47	0.01	0.73	0.01	3.77	16.7	22.3	5.6	.112
	U. S. Marine Corps	2008	18.43	0.02	0.72	0.01	3.73	16.9	22.1	5.2	.111
49	Occiput-Nasal Root										
	U. S. Army	6682	19.10	0.01	0.72	0.01	3.77	16.5	21.9	5.4	.109
	U. S. Marine Corps	2008	19.08	0.02	0.72	0.01	3.77	16.6	21.7	5.1	.109
50	Occiput-External Canthus										
	U. S. Army	6682	17.24	0.01	0.98	0.01	5.67	13.9	20.8	6.9	.099
	U. S. Marine Corps	2008	17.34	0.02	0.97	0.02	5.60	14.2	20.0	5.8	.099
51	Occiput-Tragion										
	U. S. Army	6682	10.28	0.01	1.19	0.01	11.58	6.9	14.5	7.6	.059
	U. S. Marine Corps	2008	10.45	0.03	1.21	0.02	11.56	6.7	13.7	7.0	.060
52	Occiput-Fronasale										
	U. S. Army	6682	22.19	0.01	0.83	0.01	3.75	18.9	25.4	6.5	.127
	U. S. Marine Corps	2008	22.14	0.02	0.81	0.01	3.65	19.3	24.9	5.6	.127

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Values in Centimeters							Range		Stature ratio
			Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total		
HEAD AND FACE MEASUREMENTS (continued)												
53	Head Breadth											
	U. S. Army	6582	15.27	0.01	0.59	0.01	3.83	12.9	17.4	4.5	.088	
	U. S. Marine Corps	2008	15.28	0.01	0.57	0.01	3.73	13.0	17.4	4.4	.088	
54	Bitrignon Breadth											
	U. S. Army	6682	13.50	0.01	0.56	0.00	4.18	11.4	15.6	4.2	.077	
	U. S. Marine Corps	2008	13.46	0.01	0.55	0.01	4.09	11.3	15.4	4.1	.077	
55	Head Height (Trignon-Vertex)											
	U. S. Army	6582	13.23	0.01	0.79	0.01	5.99	10.1	16.0	5.9	.076	
	U. S. Marine Corps	2008	13.38	0.02	0.68	0.01	5.10	10.9	15.5	4.6	.077	
56	Face Length (Menton-Nasal Root)											
	U. S. Army	6681	12.03	0.01	0.66	0.01	5.50	9.7	14.6	4.9	.069	
	U. S. Marine Corps	2008	12.02	0.01	0.65	0.01	5.39	9.8	14.3	4.5	.069	
57	Face Breadth (Bizygomatic)											
	U. S. Army	6681	13.99	0.01	0.56	0.00	4.00	12.0	16.3	4.3	.080	
	U. S. Marine Corps	2008	13.97	0.01	0.54	0.01	3.86	12.2	15.9	3.7	.080	
58	Interpupillary Breadth											
	U. S. Army	6680	6.13	0.00	0.40	0.00	6.51	4.8	7.9	3.1	.035	
	U. S. Marine Corps	2008	6.08	0.01	0.39	0.01	6.38	4.8	7.3	2.5	.035	

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Centimeters							Stature ratio	
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range		
								Min.	Max.	
HAND MEASUREMENTS										
59	Hand Length									
	U. S. Army	6682	19.03	0.01	0.96	0.01	5.06	15.5	23.5	8.0
	U. S. Marine Corps	2008	18.94	0.02	0.93	0.01	4.91	15.2	22.2	7.9
60	Palm Length									
	U. S. Army	6682	10.59	0.01	0.63	0.01	5.93	8.1	13.3	5.2
	U. S. Marine Corps	2008	10.53	0.01	0.59	0.01	5.64	8.3	12.5	4.2
61	Hand Breadth									
	U. S. Army	6681	8.90	0.01	0.49	0.00	5.52	7.1	10.7	3.6
	U. S. Marine Corps	2008	8.86	0.01	0.44	0.01	4.98	7.7	10.9	3.2
62	Hand Circumference									
	U. S. Army	6682	21.61	0.01	1.14	0.01	5.26	17.8	26.3	8.5
	U. S. Marine Corps	2008	21.68	0.02	1.11	0.02	5.10	18.1	25.6	7.5
63	Thumb Crotch Length									
	U. S. Army	6682	4.97	0.01	0.52	0.00	10.45	3.3	7.5	4.2
	U. S. Marine Corps	2008	4.99	0.01	0.54	0.01	10.87	3.1	6.9	3.8

Table 16. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Centimeters							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
FOOT MEASUREMENTS											
64	Foot Length	6682	26.78	0.02	1.30	0.01	4.86	21.4	32.3	10.9	.153
	U. S. Army	2008	26.70	0.03	1.29	0.02	4.84	22.5	31.3	8.8	.153
	U. S. Marine Corps										
65	Instep Length	6682	19.64	0.01	1.05	0.01	5.32	16.2	24.5	8.3	.113
	U. S. Army	2008	19.58	0.02	1.06	0.02	5.41	15.6	23.3	7.7	.112
	U. S. Marine Corps										
66	Ball of Foot Breadth	6682	9.84	0.01	0.55	0.00	5.56	8.0	12.2	4.2	.056
	U. S. Army	2008	9.80	0.01	0.52	0.01	5.32	8.2	11.8	3.6	.056
	U. S. Marine Corps										
67	Heel Breadth	6682	6.86	0.01	0.47	0.00	6.84	5.1	9.0	3.9	.039
	U. S. Army	2008	6.82	0.01	0.44	0.01	6.42	5.2	8.6	3.4	.039
	U. S. Marine Corps										
68	Ball of Foot Circumference	6682	25.02	0.02	1.48	0.01	5.92	18.6	31.3	12.7	.143
	U. S. Army	2008	25.12	0.03	1.31	0.02	5.20	20.5	29.4	8.9	.144
	U. S. Marine Corps										
69	Instep Circumference	6682	26.56	0.02	1.65	0.01	6.21	20.5	36.0	15.5	.152
	U. S. Army	2008	26.33	0.03	1.44	0.02	5.47	21.2	31.1	9.9	.151
	U. S. Marine Corps										
70	Heel-Ankle Circumference	6682	34.11	0.02	1.66	0.01	4.86	28.2	40.5	12.3	.195
	U. S. Army	2007	34.13	0.04	1.61	0.03	4.71	28.8	40.0	11.2	.196
	U. S. Marine Corps										
	Age (years)	6682	22.17	0.06	4.64	0.04	20.92	17.0	55.0	38.0	
	U. S. Army	2008	20.88	0.06	2.87	0.05	13.74	17.0	43.0	26.0	
	U. S. Marine Corps										

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966

No.	Measurements	Values in Inches							Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.		
								Total			
1	Weight (pounds)										
	U. S. Army	6677	159.10	0.29	23.35	0.20	14.68	100.0	280.0	180.0	
	U. S. Marine Corps	2006	150.16	0.44	19.67	0.31	12.28	110.0	246.0	136.0	
STANDING MEASUREMENTS											
2	Stature										
	U. S. Army	6682	68.71	0.03	2.60	0.02	3.79	59.8	78.4	18.6	
	U. S. Marine Corps	2008	68.72	0.06	2.48	0.04	3.61	61.7	77.2	15.5	
3	Cervicale Height										
	U. S. Army	6682	58.88	0.03	2.50	0.02	4.24	50.4	68.0	17.6	
	U. S. Marine Corps	2008	58.89	0.05	2.40	0.04	4.08	51.9	66.5	14.6	
4	Shoulder (Acromiale) Height										
	U. S. Army	6682	56.58	0.03	2.45	0.02	4.33	48.7	65.5	16.8	
	U. S. Marine Corps	2008	56.69	0.05	2.35	0.04	4.14	49.4	64.5	15.1	
5	Waist (Iliocristale) Height										
	U. S. Army	6682	41.86	0.03	2.11	0.02	5.05	34.0	49.3	15.3	
	U. S. Marine Corps	2008	41.74	0.05	2.02	0.03	4.84	35.6	48.4	12.8	
6	Crotch Height										
	U. S. Army	6682	33.05	0.02	1.84	0.02	5.57	25.6	40.0	14.4	
	U. S. Marine Corps	2008	33.05	0.04	1.82	0.03	5.51	26.6	38.8	12.2	

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

Measurements	N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Values in Inches			Stature ratio
							Min.	Max.	Total	
STANDING MEASUREMENTS (continued)										
7 Kneecap (Patella) Height	6682	20.81	0.02	1.28	0.01	6.14	17.0	25.2	8.2	.303
U. S. Army	2008	20.78	0.03	1.32	0.02	6.38	16.9	25.2	8.3	.302
8 Calf Height	6682	13.94	0.01	1.06	0.01	7.62	9.4	18.6	9.2	.203
U. S. Army	2008	14.19	0.02	1.06	0.02	7.47	11.1	17.4	6.3	.206
9 Functional (Thumb-Tip) Reach	6682	32.52	0.02	1.91	0.02	5.87	25.8	39.4	13.6	.473
U. S. Army	2008	31.63	0.04	1.89	0.03	5.97	26.2	38.0	11.8	.460
SITTING MEASUREMENTS										
10 Vertical Reach, Sitting	6682	54.42	0.03	2.28	0.02	4.20	46.0	63.1	17.1	.792
U. S. Army	2008	54.24	0.05	2.24	0.04	4.12	48.0	61.3	13.3	.789
11 Sitting Height	6682	35.70	0.02	1.44	0.01	4.04	30.5	40.5	10.0	.520
U. S. Army	2008	35.82	0.03	1.39	0.02	3.88	31.7	39.7	8.0	.521
12 Eye Height, Sitting	6682	30.99	0.02	1.41	0.01	4.53	25.9	36.3	10.4	.451
U. S. Army	2008	30.96	0.03	1.31	0.02	4.25	26.8	34.8	8.0	.451

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Mean	SE(M)	Values in Inches					Range		Stature ratio
					S.D.	SE(SD)	V(%)	Min.	Max.	Total		
SITTING MEASUREMENTS (continued)												
13	Mid-Shoulder Height, Sitting	6682 2008	24.56 24.56	0.02 0.03	1.25 1.25	0.01 0.02	5.09 5.11	20.0 20.4	28.8 28.1	8.8 7.7	.357 .357	
14	Shoulder-Elbow Length	6682 2008	14.52 14.61	0.01 0.02	0.73 0.73	0.01 0.01	5.05 4.96	11.7 12.5	17.2 17.0	5.5 4.5	.211 .213	
15	Elbow-Fingertip Length	6682 2008	18.88 18.83	0.01 0.02	0.91 0.87	0.01 0.01	4.81 4.64	15.5 15.7	22.6 21.9	7.1 6.2	.275 .274	
16	Knee Height, Sitting	6682 2008	21.28 21.35	0.01 0.02	1.08 1.03	0.01 0.02	5.05 4.84	17.4 18.0	25.4 25.1	8.0 7.1	.310 .311	
17	Popliteal Height, Sitting	6682 2008	17.56 18.01	0.01 0.02	0.98 0.95	0.01 0.01	5.60 5.25	14.1 14.7	21.3 20.8	7.2 6.1	.256 .262	
18	Buttock-Knee Length	6682 2008	23.41 23.43	0.01 0.02	1.12 1.07	0.01 0.02	4.80 4.57	19.7 20.4	27.9 26.8	8.2 6.4	.341 .341	
19	Buttock-Popliteal Length	6682 2008	19.62 19.73	0.01 0.02	0.99 1.00	0.01 0.02	5.02 5.08	16.2 16.9	23.1 23.1	6.9 6.2	.286 .287	

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Values in Inches						Range		Stature ratio
			Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total	
BREATH MEASUREMENTS											
20	Chest Depth										
	U. S. Army	6682	9.12	0.01	0.79	0.01	8.61	6.5	13.3	6.8	.133
	U. S. Marine Corps	2008	9.16	0.02	0.69	0.01	7.57	7.2	11.9	4.7	.13
21	Chest Breadth										
	U. S. Army	6682	12.04	0.01	0.84	0.01	7.02	9.6	16.3	6.7	.175
	U. S. Marine Corps	2008	12.10	0.02	0.74	0.01	6.13	10.1	15.0	4.9	.176
22	Hip Breadth, Standing										
	U. S. Army	6682	13.07	0.01	0.79	0.01	6.05	10.6	17.6	7.0	.190
	U. S. Marine Corps	2008	13.07	0.02	0.69	0.01	5.26	11.1	15.7	4.6	.190
23	Shoulder (Bideltoïd) Breadth										
	U. S. Army	6682	17.86	0.01	1.00	0.01	5.59	14.4	23.0	8.6	.260
	U. S. Marine Corps	2008	17.91	0.02	0.91	0.01	5.09	15.4	22.7	7.3	.261
24	Forearm-Forearm Breadth										
	U. S. Army	6682	18.10	0.02	1.66	0.01	9.17	13.2	26.0	12.8	.263
	U. S. Marine Corps	2008	17.98	0.03	1.44	0.02	7.98	14.3	25.6	11.3	.262
25	Hip Breadth, Sitting										
	U. S. Army	6682	13.45	0.01	0.94	0.01	6.97	10.5	19.7	9.2	.196
	U. S. Marine Corps	2008	13.45	0.02	0.79	0.01	5.90	11.3	17.0	5.7	.196

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Values in Inches							Range		Stature ratio
			Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total		
CIRCUMFERENCES												
26	Neck Circumference											
	U. S. Army	6681	14.72	0.01	0.81	0.01	5.53	11.9	19.1	7.2		.214
	U. S. Marine Corps	2008	14.84	0.02	0.75	0.01	5.06	12.2	17.9	5.7		.216
27	Shoulder Circumference											
	U. S. Army	6682	44.55	0.03	2.51	0.02	5.64	36.7	57.0	20.3		.648
	U. S. Marine Corps	2008	44.73	0.05	2.27	0.04	5.07	39.1	55.3	16.2		.651
28	Chest Circumference											
	U. S. Army	6682	36.92	0.03	2.63	0.02	7.13	28.3	48.9	20.6		.537
	U. S. Marine Corps	2008	37.11	0.05	2.30	0.04	6.19	31.7	49.0	17.3		.540
29	Waist Circumference											
	U. S. Army	6682	31.61	0.04	3.22	0.03	10.19	23.2	50.3	27.1		.460
	U. S. Marine Corps	2008	31.22	0.06	2.49	0.04	7.99	25.0	43.6	18.6		.454
30	Hip (Buttock) Circumference											
	U. S. Army	6682	37.09	0.03	2.46	0.02	6.63	30.5	52.3	21.8		.540
	U. S. Marine Corps	2008	37.34	0.05	2.06	0.03	5.52	31.5	45.6	14.1		.543
31	Upper Thigh Circumference											
	U. S. Army	6682	21.82	0.02	1.89	0.02	8.66	15.4	30.4	15.0		.318
	U. S. Marine Corps	2008	22.17	0.04	1.66	0.03	7.48	16.7	28.8	12.1		.323
32	Lower Thigh Circumference											
	U. S. Army	6682	15.89	0.02	1.52	0.01	9.58	11.5	22.1	10.6		.231
	U. S. Marine Corps	2008	15.77	0.03	1.26	0.02	8.00	12.0	20.9	8.9		.229

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Mean	Values in Inches					V(%)	Range		Stature ratio	
				SE(M)	S.D.	SE(SD)	Min.	Max.		Total			
CIRCUMFERENCES (continued)													
33	Calf Circumference												
	U. S. Army	6682	14.41	0.01	1.05	0.01			7.29	11.1	19.8	8.7	.210
	U. S. Marine Corps	2008	14.63	0.02	0.92	0.01			6.32	11.5	17.9	6.4	.213
34	Ankle Circumference												
	U. S. Army	6682	8.93	0.01	0.57	0.00			6.34	7.1	12.0	4.9	.130
	U. S. Marine Corps	2008	8.92	0.01	0.53	0.01			5.93	7.3	11.0	3.7	.130
35	Vert. Trunk Circum., Standing												
	U. S. Army	6682	64.61	0.04	3.34	0.03			5.17	53.3	78.2	24.9	.940
	U. S. Marine Corps	2008	64.92	0.07	2.92	0.05			4.49	56.7	76.3	19.6	.945
36	Scye Circumference												
	U. S. Army	6682	17.54	0.02	1.28	0.01			7.32	12.9	25.4	10.5	.255
	U. S. Marine Corps	2008	17.59	0.03	1.16	0.02			6.58	14.3	22.4	8.1	.256
37	Biceps Circum., Relaxed												
	U. S. Army	6682	11.59	0.01	1.08	0.01			9.29	8.3	17.4	9.1	.169
	U. S. Marine Corps	2008	11.69	0.02	0.93	0.01			7.98	9.0	15.6	6.6	.170
38	Biceps Circum., Flexed												
	U. S. Army	6682	12.70	0.01	1.08	0.01			8.52	9.0	17.8	8.8	.185
	U. S. Marine Corps	2008	12.77	0.02	0.95	0.02			7.45	9.6	16.7	7.1	.186
39	Forearm Circum., Flexed												
	U. S. Army	6682	11.59	0.01	0.85	0.01			7.31	8.9	16.2	7.3	.169
	U. S. Marine Corps	2008	11.58	0.02	0.74	0.01			6.41	9.1	14.6	5.5	.169
40	Wrist Circumference												
	U. S. Army	6682	6.72	0.00	0.34	0.00			5.13	5.4	8.5	3.1	.098
	U. S. Marine Corps	2008	6.70	0.01	0.32	0.01			4.74	5.8	7.7	1.9	.097

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Inches								Range		Stature ratio
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Min.	Max.	Total		
SURFACE MEASUREMENTS												
41	Shoulder Length	6682 2008	6.38 6.47	0.01 0.01	0.78 0.55	0.01 0.01	12.25 8.53	3.5 4.0	9.6 8.2	6.1 4.2	.093 .094	
42	Interscye Breadth	6682 2008	15.39 15.25	0.02 0.03	1.24 1.20	0.01 0.02	8.07 7.85	10.8 11.7	20.2 20.8	9.4 9.1	.224 .222	
43	Interscye, Maximum	6682 2008	20.72 20.40	0.02 0.03	1.45 1.34	0.01 0.02	7.03 6.56	15.9 15.7	26.4 25.6	10.5 9.9	.302 .297	
44	Waist Back Length	6682 2008	17.73 17.59	0.02 0.03	1.35 1.37	0.01 0.02	7.64 7.81	13.6 13.9	22.9 22.1	9.3 8.2	.258 .256	
45	Sleeve Inseam Length	6682 2008	19.13 19.02	0.01 0.02	1.05 0.99	0.01 0.02	5.51 5.20	15.6 15.9	23.5 22.6	7.9 6.7	.278 .277	
46	Sleeve Length	6682 2008	33.80 33.96	0.02 0.03	1.56 1.48	0.01 0.02	4.61 4.36	27.7 29.3	39.4 39.0	11.7 9.7	.492 .494	

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Inches							Stature ratio		
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range			
								Min.		Max.	
HEAD AND FACE MEASUREMENTS											
47	Head Circumference										
	U. S. Army	6682	22.09	0.01	0.63	0.01	2.86	20.08	25.08	5.00	.321
	U. S. Marine Corps	2008	22.10	0.01	0.61	0.01	2.74	20.12	24.21	4.09	.322
48	Head Length										
	U. S. Army	6682	7.66	0.00	0.29	0.00	3.77	6.57	8.78	2.21	.111
	U. S. Marine Corps	2008	7.65	0.01	0.28	0.00	3.73	6.65	8.70	2.05	.111
49	Occiput-Nasal Root										
	U. S. Army	6682	7.52	0.00	0.28	0.00	3.77	6.50	8.62	2.12	.109
	U. S. Marine Corps	2008	7.51	0.01	0.28	0.00	3.77	6.54	8.54	2.00	.109
50	Occiput-External Canthus										
	U. S. Army	6682	6.79	0.00	0.38	0.00	5.67	5.47	8.19	2.72	.099
	U. S. Marine Corps	2008	6.83	0.01	0.38	0.01	5.60	5.59	7.87	2.28	.099
51	Occiput-Tragion										
	U. S. Army	6682	4.05	0.01	0.47	0.00	11.58	2.72	5.71	2.99	.059
	U. S. Marine Corps	2008	4.11	0.01	0.48	0.01	11.56	2.64	5.39	2.75	.060
52	Occiput-Pronasale										
	U. S. Army	6682	8.74	0.00	0.33	0.00	3.75	7.44	10.00	2.56	.127
	U. S. Marine Corps	2008	8.72	0.01	0.32	0.01	3.65	7.60	9.80	2.20	.127

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Mean	SE(M)	Values in Inches				Range		Stature ratio
					S.D.	SE(SD)	V(%)	Min.	Max.	Total	
HEAD AND FACE MEASUREMENTS (continued)											
53	Head Breadth										
	U. S. Army	6682	6.01	0.00	0.23	0.00	3.83	5.08	6.85	1.77	.087
	U. S. Marine Corps	2008	6.01	0.01	0.22	0.00	3.74	5.12	6.85	1.73	.087
54	Bitrignon Breadth										
	U. S. Army	6682	5.31	0.00	0.22	0.00	4.18	4.49	6.14	1.65	.077
	U. S. Marine Corps	2008	5.30	0.00	0.22	0.00	4.09	4.45	6.06	1.61	.077
55	Head Height (Trignon-Vertex)										
	U. S. Army	6682	5.21	0.00	0.31	0.00	5.99	3.98	6.30	2.32	.076
	U. S. Marine Corps	2008	5.27	0.01	0.27	0.00	5.10	4.29	6.10	1.81	.077
56	Face Length (Menton-Nasal Root)										
	U. S. Army	6681	4.74	0.00	0.26	0.00	5.50	3.82	5.75	1.93	.069
	U. S. Marine Corps	2008	4.75	0.01	0.25	0.00	5.39	3.86	5.63	1.77	.069
57	Face Breadth (Bizygomatic)										
	U. S. Army	6681	5.51	0.00	0.22	0.00	4.00	4.72	6.42	1.70	.080
	U. S. Marine Corps	2008	5.50	0.00	0.21	0.00	3.86	4.80	6.26	1.46	.080
58	Interpupillary Breadth										
	U. S. Army	6680	2.41	0.00	0.16	0.00	6.51	1.89	3.11	1.22	.035
	U. S. Marine Corps	2008	2.39	0.00	0.15	0.00	6.38	1.89	2.87	0.98	.035

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Values in Inches							Stature ratio	
		N	Mean	SE(M)	S.D.	SE(SD)	V(%)	Range		
								Min.		Max.
HAND MEASUREMENTS										
59	Hand Length									
	U. S. Army	6682	7.49	0.00	0.38	0.00	5.06	6.10	9.25	3.15
	U. S. Marine Corps	2008	7.46	0.01	0.37	0.01	4.91	5.98	8.74	2.76
60	Palm Length									
	U. S. Army	6682	4.17	0.00	0.25	0.00	5.93	3.19	5.24	2.05
	U. S. Marine Corps	2008	4.15	0.01	0.23	0.00	5.64	3.27	4.92	1.65
61	Hand Breadth									
	U. S. Army	6681	3.50	0.00	0.19	0.00	5.52	2.80	4.21	1.41
	U. S. Marine Corps	2008	3.49	0.00	0.17	0.00	4.98	3.03	4.29	1.26
62	Hand Circumference									
	U. S. Army	6682	8.51	0.01	0.45	0.00	5.26	7.01	10.35	3.34
	U. S. Marine Corps	2008	8.53	0.01	0.44	0.01	5.10	7.13	10.08	2.95
63	Thumb Crotch Length									
	U. S. Army	6682	1.96	0.00	0.20	0.00	10.45	1.30	2.95	1.65
	U. S. Marine Corps	2008	1.96	0.00	0.21	0.00	10.87	1.22	2.72	1.50

Table 17. STATISTICAL VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	N	Values in Inches					Range		Stature ratio	
			Mean	SE(N)	S.D.	SE(SD)	T(δ)	Min.	Max.		Total
FOOT MEASUREMENTS											
64	Foot Length										
	U. S. Army	6682	10.54	0.01	0.51	0.00	4.86	8.43	12.72	4.29	.153
	U. S. Marine Corps	2008	10.51	0.01	0.51	0.01	4.84	8.86	12.32	3.46	.153
65	Instep Length										
	U. S. Army	6682	7.73	0.01	0.41	0.00	5.32	6.38	9.65	3.27	.112
	U. S. Marine Corps	2008	7.71	0.01	0.42	0.01	5.41	6.14	9.17	3.03	.112
66	Ball of Foot Breadth										
	U. S. Army	6682	3.87	0.00	0.22	0.00	5.56	3.15	4.80	1.65	.056
	U. S. Marine Corps	2008	3.86	0.00	0.21	0.00	5.32	3.23	4.65	1.42	.056
67	Heel Breadth										
	U. S. Army	6682	2.70	0.00	0.18	0.00	6.84	2.01	3.54	1.53	.039
	U. S. Marine Corps	2008	2.69	0.00	0.17	0.00	6.42	2.05	3.39	1.34	.039
68	Ball of Foot Circumference										
	U. S. Army	6682	9.85	0.01	0.58	0.01	5.92	7.32	12.32	5.00	.143
	U. S. Marine Corps	2008	9.89	0.01	0.51	0.01	5.20	8.07	11.57	3.50	.144
69	Instep Circumference										
	U. S. Army	6682	10.46	0.01	0.65	0.01	6.21	8.07	14.17	6.10	.152
	U. S. Marine Corps	2008	10.37	0.01	0.57	0.01	5.47	8.35	12.24	3.89	.151
70	Heel-Ankle Circumference										
	U. S. Army	6682	13.43	0.01	0.65	0.01	4.86	11.10	15.94	4.84	.195
	U. S. Marine Corps	2007	13.44	0.01	0.63	0.01	4.71	11.34	15.75	4.41	.196
	Age (years)										
	U. S. Army	6682	22.17	0.06	4.64	0.04	20.92	17.0	55.0	38.0	
	U. S. Marine Corps	2008	20.88	0.06	2.87	0.05	13.74	17.0	43.0	26.0	

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
1	Weight (kilograms)												
	U. S. Army	52.6	54.5	57.4	60.0	64.8	71.0	78.4	86.3	91.6	98.3	103.0	50.4
	U. S. Marine Corps	55.6	57.0	59.4	61.8	66.2	71.8	78.2	84.5	88.5	93.3	96.6	41.0
STANDING MEASUREMENTS													
2	Stature												
	U. S. Army	158.9	160.9	163.8	166.2	170.1	174.4	178.9	183.0	185.6	188.4	190.3	31.4
	U. S. Marine Corps	161.3	162.5	164.5	166.5	170.1	174.4	178.8	182.9	185.4	188.2	190.0	28.7
3	Cervicale Height												
	U. S. Army	134.4	136.5	139.3	141.6	145.3	149.5	153.8	157.8	160.2	162.6	164.1	29.7
	U. S. Marine Corps	136.3	137.7	139.9	141.9	145.3	149.4	153.7	157.6	160.0	162.6	164.3	28.0
4	Shoulder (acromiale) Height												
	U. S. Army	129.3	131.1	133.6	135.8	139.5	143.6	147.8	151.8	154.1	156.8	158.6	29.3
	U. S. Marine Corps	131.2	132.4	134.4	136.4	139.8	143.8	148.0	151.8	154.2	156.9	158.7	27.5
5	Waist (Iliocristale) Height												
	U. S. Army	93.6	95.1	97.5	99.5	102.8	106.4	109.9	113.1	115.2	117.5	119.2	25.6
	U. S. Marine Corps	93.9	95.6	97.8	99.6	102.5	105.9	109.4	112.8	114.9	117.0	118.4	24.5
6	Crotch Height												
	U. S. Army	72.8	74.2	76.3	78.0	80.8	83.9	87.0	89.9	91.7	93.7	95.1	22.3
	U. S. Marine Corps	73.3	74.5	76.5	78.1	80.8	83.8	87.0	90.0	91.8	93.7	95.0	21.7

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
STANDING MEASUREMENTS (continued)													
7	Kneecap (Patella) Height												
	U. S. Army	45.5	46.4	47.6	48.7	50.6	52.8	55.0	57.1	58.4	59.8	60.7	15.2
	U. S. Marine Corps	45.6	46.3	47.5	48.5	50.4	52.6	55.0	57.3	58.6	60.1	61.1	15.5
8	Calf height												
	U. S. Army	29.3	30.0	31.1	32.0	33.6	35.4	37.2	38.9	40.0	41.2	41.9	12.6
	U. S. Marine Corps	29.9	30.6	31.6	32.6	34.2	36.0	37.9	39.5	40.6	41.7	42.4	12.5
9	Functional (Thumb-Tip) Reach												
	U. S. Army	71.9	73.1	74.9	76.5	79.3	82.4	85.8	89.0	90.9	93.1	94.6	22.7
	U. S. Marine Corps	69.6	70.9	72.7	74.3	77.0	80.2	83.5	86.6	88.6	90.8	92.3	22.7
SITTING MEASUREMENTS													
10	Vertical Reach, Sitting												
	U. S. Army	124.7	126.3	128.7	130.9	134.4	138.2	142.0	145.5	147.8	150.6	152.6	27.9
	U. S. Marine Corps	124.9	126.4	128.6	130.6	133.9	137.7	141.6	145.6	147.4	149.8	151.4	26.5
11	Sitting Height												
	U. S. Army	82.0	83.0	84.5	85.9	88.2	90.8	93.2	95.4	96.7	98.2	99.2	17.2
	U. S. Marine Corps	83.1	83.9	85.2	86.4	88.6	91.0	93.4	95.6	96.9	98.4	99.4	16.3
12	Eye Height, Sitting												
	U. S. Army	70.1	71.2	72.8	74.1	76.4	78.8	81.2	83.3	84.6	86.1	87.0	16.9
	U. S. Marine Corps	70.7	71.6	72.9	74.2	76.4	78.8	81.0	82.9	84.0	85.2	86.1	15.4

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th	
SITTING MEASUREMENTS (continued)												
13	Mid-Shoulder Height, Sitting											
	U. S. Army	54.5	55.6	57.1	58.4	60.3	62.4	64.5	66.5	67.6	68.9	69.7
	U. S. Marine Corps	54.9	55.8	57.2	58.3	60.2	62.4	64.6	66.6	67.7	68.8	69.5
14	Shoulder-Elbow Length											
	U. S. Army	32.6	33.1	33.8	34.5	35.6	36.8	38.1	39.3	40.0	40.8	41.3
	U. S. Marine Corps	33.0	33.4	34.1	34.7	35.8	37.1	38.4	39.5	40.2	41.0	41.5
15	Elbow-Fingertip Length											
	U. S. Army	42.7	43.4	44.3	45.1	46.4	47.9	49.4	51.0	51.9	53.0	53.8
	U. S. Marine Corps	42.9	43.5	44.4	45.1	46.3	47.7	49.2	50.8	51.7	52.7	53.4
16	Knee Height, Sitting											
	U. S. Army	47.7	48.5	49.7	50.7	52.2	54.0	55.9	57.6	58.7	59.9	60.6
	U. S. Marine Corps	48.4	49.0	50.0	50.8	52.4	54.2	56.0	57.7	58.6	59.6	60.3
17	Popliteal Height, Sitting											
	U. S. Army	38.8	39.6	40.6	41.5	42.9	44.5	46.3	47.9	48.8	49.8	50.4
	U. S. Marine Corps	40.3	41.1	42.0	42.8	44.1	45.6	47.3	49.0	50.0	51.0	51.4
18	Buttock-Knee Length											
	U. S. Army	52.9	53.7	54.9	55.9	57.5	59.4	61.3	63.2	64.3	65.6	66.5
	U. S. Marine Corps	53.5	54.2	55.2	56.1	57.6	59.4	61.3	63.2	64.2	65.3	66.0
19	Buttock-Popliteal Length											
	U. S. Army	44.0	44.7	45.8	46.6	48.1	49.8	51.5	53.1	54.0	55.1	55.8
	U. S. Marine Corps	44.6	45.2	46.1	46.9	48.3	50.0	51.8	53.5	54.5	55.6	56.2

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th	
BREATH MEASUREMENTS												
20	Chest Depth											
	U. S. Army	19.2	19.6	20.2	20.8	21.8	23.0	24.4	25.8	26.7	27.9	28.8
	U. S. Marine Corps	19.5	19.9	20.6	21.2	22.1	23.1	24.4	25.6	26.4	27.3	28.0
21	Chest Breadth											
	U. S. Army	26.1	26.6	27.3	28.0	29.1	30.4	31.9	33.4	34.4	35.5	36.4
	U. S. Marine Corps	26.9	27.2	27.8	28.4	29.4	30.6	32.0	33.2	34.0	34.9	35.6
22	Hip Breadth, Standing											
	U. S. Army	29.1	29.5	30.2	30.8	31.8	33.0	34.4	35.8	36.7	37.8	38.6
	U. S. Marine Corps	29.5	29.9	30.5	31.0	32.0	33.1	34.3	35.5	36.2	37.2	37.8
23	Shoulder (Bideltoïd) Breadth											
	U. S. Army	40.0	40.6	41.5	42.3	43.6	45.2	47.0	48.6	49.8	51.1	52.1
	U. S. Marine Corps	40.5	41.0	41.8	42.6	43.9	45.4	46.9	48.4	49.5	50.9	52.0
24	Forearm-Forearm Breadth											
	U. S. Army	37.9	38.6	39.8	40.9	43.0	45.6	48.6	51.6	53.6	55.9	57.6
	U. S. Marine Corps	38.2	39.0	40.2	41.2	43.2	45.4	47.8	50.3	52.0	54.2	55.8
25	Hip Breadth, Sitting											
	U. S. Army	29.5	30.0	30.7	31.4	32.5	33.9	35.6	37.3	38.4	39.8	40.7
	U. S. Marine Corps	30.0	30.4	31.1	31.8	32.8	34.0	35.4	36.8	37.7	38.8	39.7

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
CIRCUMFERENCES													
26	Neck Circumference												
	U. S. Army	33.0	33.5	34.2	34.8	35.9	37.3	38.7	40.1	41.0	42.0	42.6	9.6
	U. S. Marine Corps	33.5	34.0	34.7	35.4	36.4	37.6	38.9	40.2	41.0	41.9	42.6	9.1
27	Shoulder Circumference												
	U. S. Army	99.8	101.2	103.3	105.3	108.8	112.8	117.1	121.4	124.2	127.7	130.2	30.4
	U. S. Marine Corps	101.4	102.7	104.7	106.5	109.7	113.3	117.1	121.0	123.6	126.9	129.5	28.1
28	Chest Circumference												
	U. S. Army	80.9	82.2	84.1	85.9	89.1	93.0	97.7	102.6	105.9	109.9	112.8	31.9
	U. S. Marine Corps	82.5	83.7	85.5	87.2	90.2	93.8	97.8	101.9	104.6	107.9	110.2	27.7
29	Waist Circumference												
	U. S. Army	66.3	67.7	69.7	71.3	74.5	78.9	84.7	91.4	95.9	101.6	105.6	39.3
	U. S. Marine Corps	67.2	68.4	70.2	71.9	74.9	78.6	82.8	87.4	90.8	95.2	98.6	31.4
30	Hip (Buttock) Circumference												
	U. S. Army	82.0	83.3	85.1	86.8	89.8	93.6	97.9	102.5	105.5	109.3	112.0	30.0
	U. S. Marine Corps	84.1	85.2	86.9	88.5	91.3	94.5	98.0	101.6	104.0	107.1	109.4	25.3
31	Upper Thigh Circumference												
	U. S. Army	45.5	46.5	48.1	49.5	52.0	55.1	58.5	61.8	63.9	66.1	67.6	22.1
	U. S. Marine Corps	47.4	48.4	49.8	51.1	53.4	56.1	59.0	61.9	63.7	65.8	67.3	19.9
32	Lower Thigh Circumference												
	U. S. Army	37.2	33.4	34.4	35.5	37.5	40.1	43.0	45.6	47.2	48.9	49.9	17.2
	U. S. Marine Corps	33.7	34.3	35.3	36.2	37.8	39.8	42.0	44.2	45.7	47.7	49.1	15.4

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
CIRCUMFERENCES (continued)													
33	Calf Circumference												
	U. S. Army	30.8	31.4	32.4	33.2	34.7	36.5	38.3	40.1	41.2	42.5	43.4	12.6
	U. S. Marine Corps	32.0	32.5	33.4	34.2	35.6	37.1	38.7	40.2	41.1	42.2	43.1	11.1
34	Ankle Circumference												
	U. S. Army	19.7	20.0	20.5	20.9	21.7	22.6	23.6	24.6	25.2	25.9	26.4	6.7
	U. S. Marine Corps	19.7	20.1	20.6	21.0	21.7	22.6	23.5	24.4	25.0	25.8	26.3	6.6
35	Vert. Trunk Circum., Standing												
	U. S. Army	145.4	147.5	150.6	153.5	158.3	163.8	169.5	175.1	178.6	182.9	185.9	40.5
	U. S. Marine Corps	149.5	150.8	153.1	155.4	159.6	164.4	169.9	174.7	177.6	180.7	182.8	33.3
36	Scye Circumference												
	U. S. Army	37.7	38.4	39.6	40.6	42.3	44.3	46.5	48.7	50.3	52.3	53.8	16.1
	U. S. Marine Corps	38.8	39.2	40.1	41.0	42.6	44.5	46.5	48.4	49.8	51.6	53.0	14.2
37	Biceps Circum., Relaxed												
	U. S. Army	23.9	24.4	25.3	26.1	27.5	29.2	31.2	33.1	34.2	35.6	36.6	12.7
	U. S. Marine Corps	24.7	25.2	26.0	26.7	28.0	29.6	31.2	32.8	33.8	35.0	36.0	11.3
38	Biceps Circum., Flexed												
	U. S. Army	26.5	27.1	28.0	28.9	30.4	32.1	34.0	35.9	37.0	38.4	39.4	12.9
	U. S. Marine Corps	27.3	27.8	28.7	29.4	30.8	32.3	34.0	35.6	36.6	37.8	38.7	11.4
39	Forearm Circum., Flexed												
	U. S. Army	24.8	25.3	26.1	26.8	28.0	29.3	30.8	32.2	33.1	34.3	35.1	10.3
	U. S. Marine Corps	25.5	25.9	26.5	27.0	28.1	29.3	30.6	31.9	32.6	33.5	34.0	8.5
40	Wrist Circumference												
	U. S. Army	15.1	15.3	15.7	16.0	16.5	17.0	17.6	18.2	18.6	19.0	19.3	4.2
	U. S. Marine Corps	15.2	15.4	15.7	16.0	16.4	17.0	17.5	18.1	18.4	18.8	19.0	3.8

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
SURFACE MEASUREMENTS													
41	Shoulder Length												
	U. S. Army	11.2	11.8	12.7	13.5	14.9	16.3	17.6	18.6	19.2	20.0	20.5	9.3
	U. S. Marine Corps	12.9	13.4	14.1	14.7	15.5	16.4	17.4	18.2	18.8	19.2	19.5	6.6
42	Interscye Breadth												
	U. S. Army	31.9	32.7	33.9	35.1	37.0	39.1	41.1	43.0	44.2	45.7	46.7	14.8
	U. S. Marine Corps	31.9	32.6	33.8	34.8	36.6	38.7	40.7	42.6	43.8	45.1	46.0	14.1
43	Interscye, Maximum												
	U. S. Army	43.7	44.8	46.4	47.9	50.1	52.6	55.0	57.3	58.7	60.4	61.6	17.9
	U. S. Marine Corps	43.9	44.8	46.2	47.4	49.5	51.8	54.1	56.1	57.4	58.9	59.8	15.9
44	Waist Back Length												
	U. S. Army	37.5	38.3	39.5	40.6	42.6	44.9	47.3	49.6	50.8	52.2	53.0	15.5
	U. S. Marine Corps	37.2	38.0	39.2	40.2	42.1	44.5	47.0	49.4	50.7	52.0	52.8	15.6
45	Sleeve Inseam Length												
	U. S. Army	42.3	43.0	44.2	45.2	46.8	48.6	50.3	52.0	53.0	54.2	55.1	12.8
	U. S. Marine Corps	42.7	43.4	44.3	45.1	46.6	48.2	50.0	51.6	52.6	53.6	54.3	11.5
46	Sleeve Length												
	U. S. Army	76.6	77.8	79.4	80.8	83.2	85.7	88.4	90.9	92.4	94.2	95.3	18.7
	U. S. Marine Corps	78.0	78.9	80.2	81.4	83.6	86.2	88.8	91.2	92.6	94.1	94.9	16.9

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
HEAD AND FACE MEASUREMENTS													
47	Head Circumference												
	U. S. Army	52.4	52.9	53.5	54.1	55.0	56.1	57.2	58.2	58.8	59.3	60.0	7.6
	U. S. Marine Corps	52.6	53.0	53.6	54.1	55.1	56.1	57.2	58.1	58.7	59.4	59.9	7.3
48	Head Length												
	U. S. Army	17.8	18.0	18.2	18.5	19.0	19.5	20.0	20.4	20.7	21.0	21.2	3.4
	U. S. Marine Corps	17.8	18.0	18.2	18.5	18.9	19.4	19.9	20.4	20.6	20.9	21.1	3.3
49	Occiput-Nasal Root												
	U. S. Army	17.4	17.6	17.9	18.2	18.6	19.1	19.6	20.0	20.3	20.6	20.8	3.4
	U. S. Marine Corps	17.4	17.6	17.9	18.2	18.6	19.1	19.6	20.0	20.3	20.6	20.8	3.4
50	Occiput-External Canthus												
	U. S. Army	15.1	15.3	15.7	16.0	16.6	17.2	17.9	18.6	18.9	19.3	19.4	4.3
	U. S. Marine Corps	15.2	15.4	15.8	16.1	16.6	17.3	18.0	18.6	19.0	19.3	19.6	4.4
51	Occiput-Tragion												
	U. S. Army	7.9	8.1	8.5	8.8	9.4	10.2	11.1	11.9	12.4	12.7	12.9	5.0
	U. S. Marine Corps	8.2	8.3	8.6	8.9	9.5	10.4	11.3	12.1	12.6	12.9	13.0	4.9
52	Occiput-Pronasale												
	U. S. Army	20.2	20.4	20.8	21.1	21.6	22.2	22.8	23.2	23.5	23.9	24.1	3.9
	U. S. Marine Corps	20.2	20.5	20.8	21.1	21.6	22.2	22.7	23.2	23.4	23.8	24.0	3.8

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
HEAD AND FACE MEASUREMENTS (continued)													
53	Head Breadth												
	U. S. Army	13.9	14.1	14.3	14.6	14.9	15.2	15.6	16.0	16.3	16.5	16.7	2.8
	U. S. Marine Corps	14.0	14.1	14.4	14.6	14.9	15.3	15.6	16.0	16.2	16.5	16.6	2.6
54	Bitracion Breadth												
	U. S. Army	12.2	12.4	12.6	12.8	13.1	13.5	13.9	14.2	14.4	14.7	14.8	2.6
	U. S. Marine Corps	12.2	12.3	12.6	12.8	13.1	13.4	13.8	14.2	14.4	14.6	14.8	2.6
55	Head Height (Tragion-Vertex)												
	U. S. Army	11.3	11.6	11.9	12.2	12.7	13.2	13.8	14.2	14.5	14.8	15.0	3.7
	U. S. Marine Corps	11.8	12.0	12.3	12.5	12.9	13.4	13.8	14.3	14.5	14.8	15.0	3.2
56	Face Length (Menton-Nasal Root)												
	U. S. Army	10.5	10.7	11.0	11.2	11.6	12.0	12.5	12.9	13.1	13.4	13.6	3.1
	U. S. Marine Corps	10.5	10.7	11.0	11.2	11.6	12.0	12.5	12.8	13.1	13.3	13.5	3.0
57	Face Breadth (Bizygomatic)												
	U. S. Army	12.7	12.9	13.1	13.3	13.6	14.0	14.4	14.7	14.9	15.2	15.4	2.7
	U. S. Marine Corps	12.7	12.9	13.1	13.3	13.6	14.0	14.3	14.6	14.9	15.1	15.3	2.6
58	Interpupillary Breadth												
	U. S. Army	5.2	5.3	5.5	5.6	5.9	6.1	6.4	6.6	6.8	7.0	7.1	1.9
	U. S. Marine Corps	5.2	5.3	5.4	5.6	5.8	6.1	6.4	6.6	6.7	6.9	7.0	1.8

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters									Range 99th (1st-99th)		
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th		98th	
HAND MEASUREMENTS													
59	Hand Length												
	U. S. Army	16.9	17.2	17.5	17.8	18.4	19.0	19.6	20.3	20.7	21.1	21.4	4.5
	U. S. Marine Corps	16.8	17.1	17.5	17.8	18.3	18.9	19.5	20.2	20.6	21.0	21.3	4.5
60	Palm Length												
	U. S. Army	9.2	9.3	9.6	9.8	10.2	10.6	11.0	11.4	11.7	12.0	12.2	3.0
	U. S. Marine Corps	9.2	9.3	9.6	9.8	10.1	10.5	10.9	11.3	11.6	11.9	12.1	2.9
61	Hand Breadth												
	U. S. Army	7.8	7.9	8.1	8.3	8.6	8.9	9.2	9.5	9.7	10.0	10.1	2.3
	U. S. Marine Corps	7.9	8.0	8.2	8.3	8.6	8.8	9.2	9.4	9.6	9.8	9.9	2.0
62	Hand Circumference												
	U. S. Army	19.1	19.4	19.8	20.2	20.8	21.6	22.3	23.1	23.6	24.1	24.5	5.4
	U. S. Marine Corps	19.3	19.5	19.9	20.3	20.9	21.7	22.4	23.1	23.5	24.0	24.3	5.0
63	Thumb Crotch Length												
	U. S. Army	3.8	3.9	4.1	4.3	4.6	5.0	5.3	5.6	5.8	6.1	6.2	2.4
	U. S. Marine Corps	3.8	3.9	4.1	4.3	4.6	5.0	5.3	5.7	5.9	6.2	6.4	2.6

Table 18. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Centimeters										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
FOOT MEASUREMENTS													
64	Foot Length												
	U. S. Army	23.8	24.2	24.7	25.1	25.9	26.7	27.6	28.4	29.0	29.6	30.0	6.2
	U. S. Marine Corps	23.9	24.2	24.6	25.1	25.8	26.7	27.5	28.4	28.9	29.5	30.0	6.1
65	Instep Length												
	U. S. Army	17.2	17.5	17.9	18.3	18.9	19.6	20.3	21.0	21.4	21.9	22.3	5.1
	U. S. Marine Corps	17.1	17.4	17.8	18.2	18.9	19.6	20.3	20.9	21.4	21.9	22.2	5.1
66	Ball of Foot Breadth												
	U. S. Army	8.6	8.8	9.0	9.2	9.5	9.8	10.2	10.6	10.8	11.0	11.2	2.6
	U. S. Marine Corps	8.6	8.7	9.0	9.2	9.4	9.8	10.1	10.5	10.7	10.9	11.1	2.5
67	Heel Breadth												
	U. S. Army	5.9	6.0	6.2	6.3	6.5	6.8	7.2	7.5	7.7	7.9	8.1	2.2
	U. S. Marine Corps	5.9	6.0	6.2	6.3	6.5	6.8	7.1	7.4	7.6	7.8	8.0	2.1
68	Ball of Foot Circumference												
	U. S. Army	21.3	21.8	22.5	23.1	24.1	25.1	26.0	26.9	27.4	28.0	28.4	7.1
	U. S. Marine Corps	22.2	22.5	23.0	23.4	24.2	25.1	26.0	26.8	27.3	27.9	28.3	6.1
69	Instep Circumference												
	U. S. Army	22.8	23.3	24.0	24.5	25.4	26.5	27.6	28.7	29.4	30.1	30.6	7.8
	U. S. Marine Corps	23.0	23.4	24.0	24.5	25.4	26.3	27.3	28.2	28.8	29.3	29.6	6.6
70	Heel-Ankle Circumference												
	U. S. Army	30.3	30.8	31.4	32.0	33.0	34.1	35.2	36.3	36.9	37.7	38.2	7.9
	U. S. Marine Corps	30.6	31.0	31.6	32.1	33.0	34.1	35.2	36.2	36.9	37.6	38.1	7.5
	Age (years)												
	U. S. Army	17.4	17.7	18.6	19.1	19.6	20.6	23.0	27.4	31.5	37.7	43.0	25.6
	U. S. Marine Corps	17.8	18.0	18.2	18.5	19.2	20.2	21.6	23.6	25.8	30.6	34.3	16.5

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966

No.	Measurements	Percentiles in Inches										Range (1st-99th)
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th	
1	Weight (pounds)											
	U. S. Army	116.0	120.1	126.3	132.1	142.6	156.3	172.6	190.1	201.9	216.5	226.9
	U. S. Marine Corps	122.5	125.7	131.0	136.2	146.0	158.4	172.3	186.2	195.1	205.6	212.9
												90.4
2	Stature											
	U. S. Army	62.6	63.4	64.5	65.4	67.0	68.7	70.4	72.1	73.1	74.2	74.9
	U. S. Marine Corps	63.5	64.0	64.8	65.6	67.0	68.7	70.4	72.0	73.0	74.1	74.8
												12.3
												11.3
3	Cervicale Height											
	U. S. Army	52.9	53.7	54.8	55.8	57.2	58.8	60.6	62.1	63.0	64.0	64.6
	U. S. Marine Corps	53.7	54.2	55.1	55.8	57.2	58.8	60.5	62.1	63.0	64.0	64.7
												11.7
												11.0
4	Shoulder (Acromiale) Height											
	U. S. Army	50.9	51.6	52.6	53.5	54.9	56.6	58.2	59.8	60.7	61.7	62.4
	U. S. Marine Corps	51.6	52.1	52.9	53.7	55.0	56.6	58.3	59.8	60.7	61.8	62.5
												11.5
												10.9
5	Waist (Iliocristale) Height											
	U. S. Army	36.8	37.4	38.4	39.2	40.5	41.9	43.3	44.5	45.3	46.3	46.9
	U. S. Marine Corps	37.0	37.6	38.5	39.2		41.7	43.1	44.4	45.2	46.1	46.6
												10.1
												9.6
6	Crotch Height											
	U. S. Army	28.6	29.2	30.0	30.7	31.8	33.0	34.3	35.4	36.1	36.9	37.4
	U. S. Marine Corps	28.9	29.4	30.1	30.7	31.8	33.0	34.3	35.4	36.1	36.9	37.4
												8.8
												8.5

STANDING MEASUREMENTS

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches								Range (1st-99th)			
		1st	2nd	5th	10th	25th	Median 50th	75th	90th		95th	98th	99th
STANDING MEASUREMENTS (continued)													
7	Kneecap (patella) Height												
	U. S. Army	17.9	18.2	18.8	19.2	19.9	20.8	21.7	22.5	23.0	23.5	23.9	6.0
	U. S. Marine Corps	18.0	18.2	18.7	19.1	19.8	20.7	21.7	22.6	23.1	23.7	24.0	6.0
8	Calf Height												
	U. S. Army	11.5	11.8	12.2	12.6	13.2	13.9	14.6	15.3	15.7	16.2	16.5	5.0
	U. S. Marine Corps	11.8	12.0	12.4	12.8	13.5	14.2	14.9	15.6	16.0	16.4	16.7	4.9
9	Functional (Thumb-Tip) Reach												
	U. S. Army	28.3	28.8	29.5	30.1	31.2	32.5	33.8	35.0	35.8	36.7	37.2	8.9
	U. S. Marine Corps	27.4	27.9	28.6	29.2	30.3	31.6	32.9	34.1	34.9	35.8	36.4	9.0
SITTING MEASUREMENTS													
10	Vertical Reach, Sitting												
	U. S. Army	49.1	49.7	50.7	51.5	52.9	54.4	55.9	57.3	58.2	59.3	60.1	11.0
	U. S. Marine Corps	49.2	49.8	50.6	51.4	52.7	54.2	55.7	57.2	58.0	59.0	59.6	10.4
11	Sitting Height												
	U. S. Army	32.3	32.7	33.3	33.8	34.7	35.7	36.7	37.6	38.1	38.6	39.0	6.7
	U. S. Marine Corps	32.7	33.0	33.6	34.0	34.9	35.8	36.8	37.6	38.2	38.8	39.2	6.5
12	Eye Height, Sitting												
	U. S. Army	27.6	28.0	28.6	29.2	30.1	31.0	32.0	32.8	33.3	33.9	34.3	6.7
	U. S. Marine Corps	27.8	28.2	28.7	29.2	30.1	31.0	31.9	32.6	33.1	33.6	33.9	6.1

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in inches										Range (1st-99th.)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
SITTING MEASUREMENTS (continued)													
13	Mid-Shoulder Height, Sitting												
	U. S. Army	21.5	21.9	22.5	23.0	23.7	24.6	25.4	26.2	26.6	27.1	27.4	5.9
	U. S. Marine Corps	21.6	22.0	22.5	23.0	23.7	24.6	25.4	26.2	26.7	27.1	27.4	5.8
	Shoulder-Elbow Length												
14	U. S. Army	12.8	13.0	13.3	13.6	14.0	14.5	15.0	15.5	15.7	16.1	16.3	3.5
	U. S. Marine Corps	13.0	13.2	13.4	13.7	14.1	14.6	15.1	15.6	15.8	16.1	16.3	3.3
15	Elbow-Fingertip Length												
	U. S. Army	16.8	17.1	17.4	17.8	18.3	18.8	19.5	20.1	20.4	20.9	21.2	4.4
	U. S. Marine Corps	16.9	17.1	17.5	17.8	18.2	18.8	19.4	20.0	20.4	20.8	21.0	4.1
	Knee Height, Sitting												
16	U. S. Army	18.8	19.1	19.6	20.0	20.6	21.3	22.0	22.7	23.1	23.6	23.9	5.1
	U. S. Marine Corps	19.1	19.3	19.7	20.0	20.6	21.3	22.1	22.7	23.1	23.5	23.7	4.6
17	Popliteal Height, Sitting												
	U. S. Army	15.3	15.6	16.0	16.3	16.9	17.5	18.2	18.8	19.2	19.6	19.9	4.6
	U. S. Marine Corps	15.9	16.2	16.6	16.9	17.4	18.0	18.6	19.3	19.7	20.1	20.2	4.3
	Buttock-Knee Length												
18	U. S. Army	20.8	21.2	21.6	22.0	22.6	23.4	24.1	24.9	25.3	25.8	26.2	5.4
	U. S. Marine Corps	21.1	21.4	21.8	22.1	22.7	23.4	24.2	24.9	25.3	25.7	26.0	4.9
19	Buttock-Popliteal Length												
	U. S. Army	17.3	17.6	18.0	18.4	19.0	19.6	20.3	20.9	21.3	21.7	22.0	4.7
	U. S. Marine Corps	17.6	17.8	18.2	18.5	19.0	19.7	20.4	21.1	21.5	21.9	22.2	4.6

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
BREATH MEASUREMENTS													
20	Chest Depth	7.6	7.7	8.0	8.2	8.6	9.1	9.6	10.1	10.5	11.0	11.4	3.8
	U. S. Army	7.7	7.8	8.1	8.3	8.7	9.1	9.6	10.1	10.4	10.8	11.0	3.3
21	Chest Breadth	10.3	10.5	10.8	11.0	11.4	12.0	12.6	13.1	13.5	14.0	14.3	4.0
	U. S. Army	10.6	10.7	11.0	11.2	11.6	12.1	12.6	13.1	13.4	13.8	14.0	3.4
22	Hip Breadth, Standing	11.4	11.6	11.9	12.1	12.5	13.0	13.6	14.1	14.5	14.9	15.2	3.8
	U. S. Army	11.6	11.8	12.0	12.2	12.6	13.0	13.5	14.0	14.3	14.6	14.9	3.3
23	Shoulder (Bideltoïd) Breadth	15.7	16.0	16.3	16.6	17.2	17.8	18.5	19.2	19.6	20.1	20.5	4.8
	U. S. Army	16.0	16.2	16.5	16.8	17.3	17.9	18.5	19.1	19.5	20.0	20.4	4.5
24	Forearm-Forearm Breadth	14.9	15.2	15.7	16.1	16.9	18.0	19.1	20.3	21.1	22.0	22.7	7.8
	U. S. Army	15.0	15.4	15.8	16.2	17.0	17.9	18.8	19.8	20.5	21.3	22.0	7.0
25	Hip Breadth, Sitting	11.6	11.8	12.1	12.3	12.8	13.4	14.0	14.7	15.1	15.6	16.0	4.4
	U. S. Army	11.8	12.0	12.3	12.5	12.9	13.4	13.9	14.5	14.8	15.3	15.6	3.8

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
CIRCUMFERENCES													
26	Neck Circumference												
	U. S. Army	13.0	13.2	13.5	13.7	14.2	14.7	15.2	15.8	16.1	16.5	16.8	3.8
	U. S. Marine Corps	13.2	13.4	13.7	13.9	14.3	14.8	15.3	15.8	16.1	16.5	16.8	3.6
27	Shoulder Circumference												
	U. S. Army	39.3	39.8	40.7	41.5	42.3	44.4	46.1	47.8	48.9	50.3	51.3	12.0
	U. S. Marine Corps	39.9	40.4	41.2	41.9	43.2	44.6	46.1	47.6	48.7	50.0	51.0	11.1
28	Chest Circumference												
	U. S. Army	31.8	32.4	33.1	33.8	35.1	36.6	38.5	40.4	41.7	43.3	44.4	12.6
	U. S. Marine Corps	32.5	32.9	33.7	34.3	35.5	36.9	38.5	40.1	41.2	42.5	43.4	10.9
29	Waist Circumference												
	U. S. Army	26.1	26.7	27.4	28.1	29.3	31.0	33.4	36.0	37.8	40.0	41.6	15.5
	U. S. Marine Corps	26.5	26.9	27.6	28.3	29.5	30.9	32.6	34.4	35.7	37.5	38.8	12.4
30	Hip (Buttock) Circumference												
	U. S. Army	32.3	32.8	33.5	34.2	35.4	36.8	38.6	40.4	41.6	43.0	44.1	11.8
	U. S. Marine Corps	33.1	33.5	34.2	34.8	35.9	37.2	38.6	40.0	40.9	42.2	43.1	10.0
31	Upper Thigh Circumference												
	U. S. Army	17.9	18.3	18.9	19.5	20.5	21.7	23.0	24.3	25.1	26.0	26.6	8.7
	U. S. Marine Corps	18.7	19.0	19.6	20.1	21.0	22.1	23.2	24.4	25.1	25.9	26.5	7.9
32	Lower Thigh Circumference												
	U. S. Army	12.9	13.1	13.6	14.0	14.8	15.8	16.9	18.0	18.6	19.2	19.6	6.7
	U. S. Marine Corps	13.2	13.5	13.9	14.2	14.9	15.7	16.5	17.4	18.0	18.8	19.3	6.1

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		Median											
		1st	2nd	5th	10th	25th	50th	75th	90th	95th	98th		99th
CIRCUMFERENCES (continued)													
33	Calf Circumference												
	U. S. Army	12.2	12.4	12.8	13.1	13.7	14.4	15.1	15.8	16.2	16.7	17.1	4.9
	U. S. Marine Corps	12.6	12.8	13.2	13.5	14.0	14.6	15.2	15.8	16.2	16.6	17.0	4.4
34	Ankle Circumference												
	U. S. Army	7.8	7.9	8.1	8.2	8.5	8.9	9.3	9.7	9.9	10.2	10.4	2.6
	U. S. Marine Corps	7.8	7.9	8.1	8.3	8.6	8.9	9.2	9.6	9.8	10.1	10.4	2.6
35	Vert. Trunk Circum., Standing												
	U. S. Army	52.7	58.1	59.3	60.4	62.3	64.5	66.7	68.9	70.3	72.0	73.2	16.0
	U. S. Marine Corps	58.8	59.4	60.3	61.2	62.8	64.8	66.9	68.8	69.9	71.2	72.0	13.2
36	Scye Circumference												
	U. S. Army	14.8	15.1	15.6	16.0	16.7	17.4	18.3	19.2	19.8	20.6	21.2	6.4
	U. S. Marine Corps	15.3	15.4	15.8	16.2	16.8	17.5	18.3	19.1	19.6	20.3	20.8	5.5
37	Biceps Circum., Relaxed												
	U. S. Army	9.4	9.6	10.0	10.3	10.8	11.5	12.3	13.0	13.5	14.0	14.4	5.0
	U. S. Marine Corps	9.7	9.9	10.2	10.5	11.0	11.6	12.3	12.9	13.3	13.8	14.2	4.5
38	Biceps Circum., Flexed												
	U. S. Army	10.4	10.7	11.0	11.4	12.0	12.6	13.4	14.1	14.6	15.1	15.5	5.1
	U. S. Marine Corps	10.7	11.0	11.3	11.6	12.1	12.7	13.4	14.0	14.4	14.9	15.2	4.5
39	Forearm Circum., Flexed												
	U. S. Army	9.8	10.0	10.3	10.5	11.0	11.6	12.1	12.7	13.0	13.5	13.8	4.0
	U. S. Marine Corps	10.0	10.2	10.4	10.6	11.1	11.6	12.1	12.6	12.8	13.2	13.4	3.4
40	Wrist Circumference												
	U. S. Army	5.9	6.0	6.2	6.3	6.5	6.7	6.9	7.2	7.3	7.5	7.6	1.7
	U. S. Marine Corps	6.0	6.1	6.2	6.3	6.5	6.7	6.9	7.1	7.2	7.4	7.5	1.5

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches								Range 99th (1st-99th)			
		1st	2nd	5th	10th	25th	Median 50th	75th	90th		95th	98th	
SURFACE MEASUREMENTS													
41	Shoulder Length												
	U. S. Army	4.4	4.6	5.0	5.3	5.9	6.4	6.9	7.3	7.6	7.8	8.1	3.7
	U. S. Marine Corps	5.1	5.3	5.6	5.8	6.1	6.5	6.8	7.2	7.4	7.6	7.7	2.6
42	Interscye Breadth												
	U. S. Army	12.6	12.9	13.4	13.8	14.6	15.4	16.2	17.0	17.4	18.0	18.4	5.8
	U. S. Marine Corps	12.6	12.8	13.3	13.7	14.4	15.2	16.0	16.8	17.2	17.8	18.1	5.5
43	Interscye, Maximum												
	U. S. Army	17.2	17.6	18.3	18.8	19.7	20.7	21.7	22.6	23.1	23.8	24.3	7.1
	U. S. Marine Corps	17.3	17.6	18.2	18.7	19.5	20.4	21.3	22.1	22.6	23.2	23.6	6.3
44	Waist Back Length												
	U. S. Army	14.8	15.1	15.6	16.0	16.8	17.7	18.6	19.5	20.0	20.5	20.9	6.1
	U. S. Marine Corps	14.6	15.0	15.4	15.8	16.6	17.5	18.5	19.4	20.0	20.5	20.8	6.2
45	Sleeve Inseam Length												
	U. S. Army	16.7	17.0	17.4	17.8	18.4	19.1	19.8	20.5	20.9	21.4	21.7	5.0
	U. S. Marine Corps	16.8	17.1	17.4	17.8	18.3	19.0	19.7	20.3	20.7	21.1	21.4	4.6
46	Sleeve Length												
	U. S. Army	30.2	30.6	31.3	31.8	32.7	33.8	34.8	35.8	36.4	37.1	37.5	7.3
	U. S. Marine Corps	30.7	31.1	31.6	32.1	32.9	33.9	35.0	35.9	36.5	37.0	37.4	6.7

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
HEAD AND FACE MEASUREMENTS													
47	Head Circumference	20.63	20.81	21.07	21.30	21.66	22.08	22.51	22.91	23.16	23.43	23.61	2.98
	U. S. Army	20.72	20.86	21.10	21.32	21.69	22.10	22.50	22.87	23.10	23.37	23.57	2.85
	U. S. Marine Corps												
48	Head Length	6.99	7.07	7.19	7.29	7.47	7.67	7.86	8.03	8.14	8.26	8.34	1.35
	U. S. Army	7.01	7.08	7.19	7.28	7.45	7.65	7.85	8.02	8.13	8.24	8.31	1.30
	U. S. Marine Corps												
49	Occiput-Nasal Root	6.84	6.92	7.04	7.15	7.33	7.52	7.71	7.88	7.98	8.09	8.17	1.33
	U. S. Army	6.84	6.92	7.04	7.15	7.32	7.51	7.70	7.87	7.98	8.11	8.21	1.37
	U. S. Marine Corps												
50	Occiput-External Canthus	5.93	6.03	6.18	6.30	6.52	6.78	7.05	7.30	7.44	7.58	7.66	1.73
	U. S. Army	5.98	6.07	6.21	6.33	6.55	6.82	7.09	7.33	7.47	7.62	7.70	1.72
	U. S. Marine Corps												
51	Occiput-Tragion	3.10	3.20	3.33	3.46	3.69	4.01	4.37	4.70	4.87	5.01	5.26	1.96
	U. S. Army	3.21	3.28	3.39	3.51	3.75	4.08	4.45	4.78	4.95	5.08	5.13	1.92
	U. S. Marine Corps												
52	Occiput-Pronasale	7.94	8.04	8.18	8.31	8.52	8.74	8.96	9.15	9.27	9.40	9.48	1.54
	U. S. Army	7.97	8.05	8.18	8.30	8.50	8.72	8.93	9.12	9.23	9.35	9.44	1.47
	U. S. Marine Corps												

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches										Range (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		99th
HEAD AND FACE MEASUREMENTS (continued)													
53	Head Breadth												
	U. S. Army	5.48	5.55	5.65	5.73	5.86	6.00	6.16	6.31	6.40	6.51	6.58	1.10
	U. S. Marine Corps	5.50	5.56	5.65	5.73	5.86	6.01	6.16	6.30	6.39	6.49	6.55	1.05
54	Bitrignon Breadth												
	U. S. Army	4.80	4.86	4.95	5.03	5.16	5.31	5.46	5.60	5.69	5.78	5.85	1.05
	U. S. Marine Corps	4.79	4.86	4.95	5.03	5.15	5.30	5.44	5.58	5.66	5.75	5.82	1.03
55	Head Height (Trignon-Vertex)												
	U. S. Army	4.46	4.56	4.69	4.81	5.00	5.21	5.42	5.61	5.72	5.83	5.90	1.44
	U. S. Marine Corps	4.66	4.72	4.83	4.93	5.09	5.27	5.45	5.61	5.71	5.84	5.92	1.27
56	Face Length (Menton-Nasal Root)												
	U. S. Army	4.14	4.21	4.31	4.41	4.56	4.73	4.91	5.07	5.17	5.29	5.37	1.23
	U. S. Marine Corps	4.13	4.20	4.31	4.41	4.56	4.73	4.90	5.06	5.15	5.25	5.31	1.18
57	Face Breadth (Bizygomatic)												
	U. S. Army	5.01	5.07	5.15	5.23	5.36	5.51	5.66	5.79	5.88	5.98	6.05	1.04
	U. S. Marine Corps	5.00	5.06	5.15	5.23	5.36	5.50	5.64	5.77	5.85	5.95	6.02	1.02
58	Interpupillary Breadth												
	U. S. Army	2.06	2.10	2.15	2.21	2.31	2.41	2.52	2.61	2.67	2.74	2.80	0.74
	U. S. Marine Corps	2.05	2.09	2.14	2.20	2.29	2.39	2.50	2.59	2.65	2.71	2.75	0.70

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches									Range (1st-99th)		
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th		98th	
HAND MEASUREMENTS													
59	Hand Length												
	U. S. Army	6.66	6.75	6.90	7.02	7.23	7.48	7.74	7.98	8.13	8.31	8.44	1.78
	U. S. Marine Corps	6.62	6.73	6.88	7.01	7.21	7.44	7.69	7.93	8.09	8.28	8.40	1.78
60	Palm Length												
	U. S. Army	3.61	3.68	3.77	3.86	4.00	4.16	4.33	4.49	4.59	4.71	4.79	1.18
	U. S. Marine Corps	3.60	3.68	3.78	3.86	3.99	4.14	4.30	4.45	4.55	4.67	4.75	1.15
61	Hand Breadth												
	U. S. Army	3.07	3.12	3.20	3.26	3.37	3.50	3.63	3.75	3.83	3.93	3.99	0.92
	U. S. Marine Corps	3.13	3.16	3.21	3.27	3.37	3.48	3.60	3.72	3.78	3.86	3.91	0.78
62	Hand Circumference												
	U. S. Army	7.53	7.64	7.81	7.95	8.20	8.49	8.79	9.09	9.28	9.49	9.63	2.10
	U. S. Marine Corps	7.59	7.68	7.83	7.98	8.23	8.53	8.82	9.09	9.26	9.45	9.58	1.99
63	Thumb Crotch Length												
	U. S. Army	1.50	1.55	1.63	1.70	1.82	1.95	2.09	2.22	2.30	2.39	2.46	0.90
	U. S. Marine Corps	1.50	1.54	1.61	1.69	1.82	1.96	2.10	2.23	2.32	2.42	2.50	1.00

Table 19. PERCENTILE VALUES FOR U. S. ARMY AND U. S. MARINE CORPS - 1966 (continued)

No.	Measurements	Percentiles in Inches										Range 99th (1st-99th)	
		1st	2nd	5th	10th	25th	Median 50th	75th	90th	95th	98th		
FOOT MEASUREMENTS													
64	Foot Length												
	U. S. Army	9.37	9.51	9.71	9.89	10.19	10.53	10.87	11.20	11.41	11.65	11.82	2.45
	U. S. Marine Corps	9.40	9.52	9.70	9.87	10.17	10.50	10.84	11.17	11.38	11.62	11.80	2.40
65	Instep Length												
	U. S. Army	6.78	6.89	7.06	7.21	7.46	7.73	8.00	8.25	8.41	8.61	8.76	1.98
	U. S. Marine Corps	6.73	6.85	7.03	7.18	7.43	7.71	7.98	8.24	8.41	8.61	8.76	2.03
66	Ball of Foot Breadth												
	U. S. Army	3.39	3.45	3.53	3.61	3.73	3.87	4.01	4.15	4.24	4.34	4.41	1.02
	U. S. Marine Corps	3.38	3.44	3.53	3.60	3.72	3.85	3.99	4.12	4.20	4.30	4.38	1.00
67	Heel Breadth												
	U. S. Army	2.31	2.36	2.42	2.48	2.57	2.69	2.82	2.94	3.02	3.12	3.19	0.88
	U. S. Marine Corps	2.32	2.36	2.42	2.48	2.57	2.68	2.79	2.91	2.99	3.08	3.15	0.83
68	Ball of Foot Circumference												
	U. S. Army	8.37	8.57	8.86	9.10	9.43	9.87	10.24	10.58	10.78	11.02	11.18	2.81
	U. S. Marine Corps	8.73	8.85	9.04	9.23	9.55	9.89	10.23	10.54	10.73	10.97	11.15	2.42
69	Instep Circumference												
	U. S. Army	8.97	9.16	9.43	9.65	10.02	10.43	10.88	11.31	11.56	11.85	12.03	3.06
	U. S. Marine Corps	9.04	9.22	9.46	9.66	9.98	10.36	10.75	11.12	11.32	11.54	11.65	2.61
70	Heel-Ankle Circumference												
	U. S. Army	11.94	12.12	12.38	12.61	12.99	13.42	13.86	14.28	14.53	14.83	15.03	3.09
	U. S. Marine Corps	12.06	12.21	12.43	12.64	12.99	13.41	13.85	14.27	14.52	14.81	15.00	2.94
	Age (years)												
	U. S. Army	17.4	17.7	18.6	19.1	19.6	20.6	23.0	27.4	31.5	37.7	43.0	25.6
	U. S. Marine Corps	17.8	18.0	18.2	18.5	19.2	20.2	21.6	23.6	25.8	30.6	34.3	16.5

9. SUMMARY AND CONCLUSIONS

An anthropometric survey of U. S. Marine Corps men was carried out in January and February, 1966. During the survey, seventy body measurements were made on a total sample of 2008 Marines; 1003 men were measured at Camp Lejeune, North Carolina and 1005 men were measured at Camp Pendleton, California. The resulting anthropometric data are presented in detail and discussed in this report.

The U. S. Marine Corps anthropometric data are compared with U. S. Army anthropometric data, and it was found that Marine Corps personnel are very similar to U. S. Army personnel in body size and proportions.

The U. S. Armed Forces anthropometric surveys of 1966, of which the Marine Corps survey was a part, represented the first major updating of anthropometric data on the U. S. military population in some twenty years. These surveys also provided, for the first time, standard anthropometric data for all of the U. S. Armed Forces.

Body size information, in the form of anthropometric data, is required as a basis for design criteria in the development of military equipment and materiel. Information on the range of variability in body size and proportions within the military population is necessary for the design, sizing, and tariffing of military clothing and individual equipment. Anthropometric data provided a basic input for the design and human engineering of military equipment and materiel. The Marine Corps anthropometric data should be of wide use and application in the design, sizing, and human engineering of clothing, personal equipment, and other materiel intended for use by the United States Marine Corps.

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APPENDIX - The Data Sheet (front)

U. S. MARINE CORPS ANTHROPOMETRIC SURVEY - 1966

ANTHROPOMETRIC MEASUREMENTS

Station #1 - Scales

Card 1:

--	--	--	--	--	--

1 WEIGHT (to nearest pound)

Card 2:

--	--	--	--	--	--

Station #2 - Standing on floor; full anthropometer

2 STATURE	10				
3 CERVICAL HEIGHT	14				
4 SHOULDER HEIGHT (ACROMIAL)	18				
5 WAIST HEIGHT (ILIOCRISTALE)	22				
6 FUNCTIONAL REACH (from wall)	26				

Sitting on box; half anthropometer

7 GROUCH HEIGHT	30				
8 PATELLA HEIGHT, TOP	34				
9 CALF HEIGHT	37				

Sitting, with foot box; half anthropometer

10 ARM REACH, UPWARD	40				
11 SITTING HEIGHT	44				
12 EYE HEIGHT, SITTING	48				
13 MID-SHOULDER HEIGHT, SITTING	51				
14 KNEE HEIGHT, SITTING	54				
15 POPLITEAL HEIGHT, SITTING	57				

Station #3 - Standing; large callipers

16 CHEST DEPTH	50				
17 CHEST BREADTH, SKIN	63				
18 HIP BREADTH, STANDING	66				

Sitting; large callipers

19 OCCIPUT - EXTERNAL CANTHUS	69				
20 OCCIPUT - TRAGION	72				
21 HEAD HEIGHT (VERTIK-TRAGION)	75				
22 SHOULDER-ELBOW LENGTH	13				

Location

--	--	--	--	--	--

 Card 1: Subject No. 1

--	--	--	--	--	--

Unit

--	--	--	--	--	--

 Date

--	--	--	--	--	--

Name

--	--	--	--	--	--

Rank: Enlisted¹, Staff NCO², Warrant Off.³, Comm. Off.⁴

--	--	--	--	--	--

Pay Grade: 1, 2, 3, 4, 5, 6, 7, 8, 9

--	--	--	--	--	--

Service No.

--	--	--	--	--	--

Primary MOS

--	--	--	--	--	--

Present Billet MOS

--	--	--	--	--	--

Additional Specialty or MOS

--	--	--	--	--	--

Armored Vehicle Crewman

--	--	--	--	--	--

Length of Service: years completed

--	--	--	--	--	--

months, up to 12

--	--	--	--	--	--

Age: years, at last birthday

--	--	--	--	--	--

Birthplace, Subject

--	--	--	--	--	--

Birthplace, Father

--	--	--	--	--	--

Birthplace, Mother

--	--	--	--	--	--

Longest Residence

--	--	--	--	--	--

National Extraction

--	--	--	--	--	--

Education: years of schooling completed

--	--	--	--	--	--

Marital Status: single¹, married², septd.³, divorced⁴, widower⁵

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Nude Weight (nearest pound)

--	--	--	--	--	--

Height, without shoes (nearest inch)

--	--	--	--	--	--

Glasses: not worn¹, worn²

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Handedness: right-handed¹, left-handed², ambidextrous³

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Combat Boots (size and width worn)

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APPENDIX - The Data Sheet (back)

- 23 FOREARM-HAND LENGTH
24 BUTTOCK-KNEE LENGTH
25 BUTTOCK-POPLITEAL LENGTH
26 SHOULDER BREADTH (BIDELTOID)
27 MAXIMUM FOREARM-FOREARM BREADTH
28 HIP BREADTH, SITTING

Station #4 - Sitting; spreading calipers

- 29 FACE BREADTH (BIZYGOMATIC)
30 BITRAGION DIAMETER
31 HEAD LENGTH
32 OCCIPUT - NASAL ROOT
33 OCCIPUT - PRONASALE
34 HEAD BREADTH

Sitting; sliding calipers

- 35 INTERPUPILLARY DISTANCE
36 FACE LENGTH (MENTON-NASAL ROOT)
37 HAND LENGTH
38 PALM LENGTH
39 THUMB CROTCH - 1ST FINGER BASE
40 HAND BREADTH (METACARPALS)

Standing on box; sliding calipers

- 41 HEEL BREADTH

Standing; foot board

Toe Length: 1st toe longer¹, 2nd toe longer²

- 42 FOOT LENGTH
43 BALL OF FOOT LENGTH (INSTEP)
44 BALL OF FOOT BREADTH

Station #5 - Standing; tape

- 45 HEAD CIRCUMFERENCE
46 NECK CIRCUMFERENCE

- 47 SHOULDER CIRCUMFERENCE
48 CHEST CIRCUMFERENCE
49 WAIST CIRCUMFERENCE
50 HIP (BUTTOCK) CIRCUMFERENCE
51 ARM SCYE CIRCUMFERENCE
52 BICEPS CIRCUMFERENCE, EXTENDED
53 WRIST CIRCUMFERENCE
54 HAND CIRCUMFERENCE (METACARPALS)
55 BICEPS CIRCUMFERENCE, FLEXED
56 FOREARM CIRCUMFERENCE, FLEXED

Station #6 - Standing on floor; tape

- 57 WAIST BACK LENGTH
58 SHOULDER LENGTH
59 INTERSCYE DISTANCE
60 INTERSCYE MAXIMUM
61 SLEEVE LENGTH
62 SLEEVE INSEAM
63 VERTICAL TRUNK CIRCUMFERENCE

Standing on box; tape

- 64 UPPER THIGH CIRCUMFERENCE
65 LOWER THIGH CIRCUMFERENCE
66 CALF CIRCUMFERENCE
67 ANKLE CIRCUMFERENCE
68 HEEL-ANKLE CIRCUMFERENCE
69 INSTEP CIRCUMFERENCE
70 BALL OF FOOT CIRCUMFERENCE

Station #7 - Skinfold calipers

- 71 DORSAL HAND
72 JUXTA-NIPPLE
73 TRICEPS
74 SUB-SCAPULAR
75 M-A-L XIPHOID
76 SUPRA-ILIAC

